DG .net

IS departments that strip users of their PC games see limited gains at best. In Depth, page 83

The industry's hottest skill isn't just for consultants anymore. IS staffers get in on the SAP game. Page 87


# COMPUTERWORLD

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## IT rescue justifies merger

*• CoreStates gets IT savvy and system updates from First Union's $16.3B bid*

*By Thomas Hoffman*

First Union's Austin A. Adams says the bank intends to slash CoreStates' year 2000 costs

CAN IT POSSIBLY make sense for one bank to spend 22 times its earnings to acquire another bank whose earnings haven't grown in the past seven quarters?

For Charlotte, N.C.-based First Union Corp., the answer could be yes — if it can use its information technology savvy to slash CoreStates Financial Corp.'s expenses by 45% and bolster revenue by $200 million annually.

Company executives and observers defended First Union's pricey $16.3 billion bid late last month to acquire Philadelphia-based CoreStates. That's because it would have cost Core-

Bank merger, page 108

## Load balancers aid Web site access

*By Bob Wallace and Matt Hamblen*

USERS ARE SINGING the praises of load balancers, which they say boost Web site reliability, simplify management and ease maintenance.

"They let you offer the bullet-proof Web site," said Dan Nottke, an information systems manager at Andersen Worldwide in Chicago and a beta tester of the technology. "[Load balancers] ensure 100% availability, or as close as you can get to that level."

A flurry of load balancers is set to ship by year's end. They will be available as software that runs on a common server or as a turnkey package. And they will cost as little as a few thousand

Load balancers, page 14

*By Julia King* ☎ **Forget the formal resume and cover letter.** Forget the suit and pantyhose. Kim Gaughan was **lounging around in sweats** on the Sunday morning she applied over the phone for a **software engineering** job at **SCT Corp.** in Malvern, Pa.

Telerecrufting, page 108

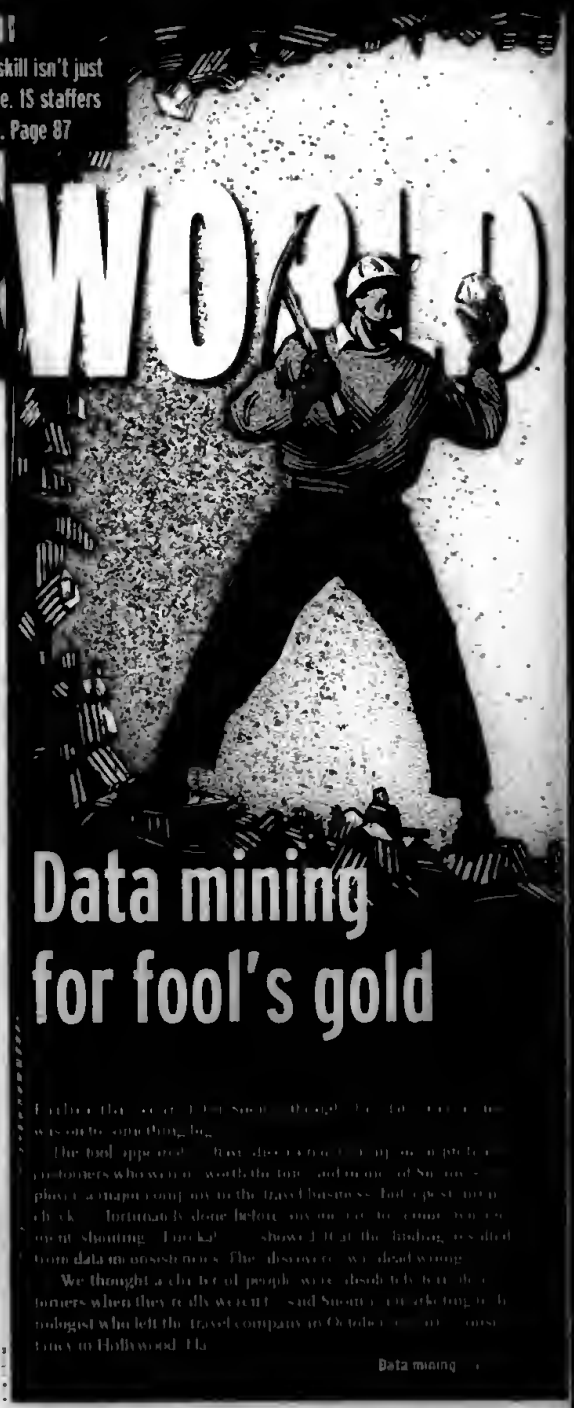
## Enterprise tool kits plagued by hidden costs

*By Patrick Dryden*

THE PURCHASE price of enterprise management software such as Unicenter TNG, OpenView or TME 10 can easily top $10 million for a large corporation.

But users are finding that the cost of implementing those mammoth and complex tools can run many times higher than the initial license. The suites, which are intended to curb runaway network support costs, can instead be a serious drain on corporate budgets unless man-

Enterprise tools, page 17



## Data mining for fool's gold

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The tool appealed [illegible] customers who were worth the time and money [illegible] phone campaign in the travel business. But [illegible] check. Fortunately, [illegible] spent shouting. Uncle! [illegible] showed [illegible] from data mining [illegible]. The discovery [illegible]

We thought a cluster of people were absolutely [illegible] customers when they really weren't," said Snooty [illegible] analyst who left the travel company in October [illegible] Vista in Hollywood, Fla.

Data mining

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**EXTRA, EXTRA, EXTRANET**
Groups push extranet for collaborative engineering. Next page

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Security becomes hot topic as companies move to 'net. Page 4

**Slip sliding away**
As NT 5.0 ship date slips, some turn to other vendors. Page 6

**INTERNET WORLD PREVIEW**
Electronic commerce is in, push technology is out. Page 14



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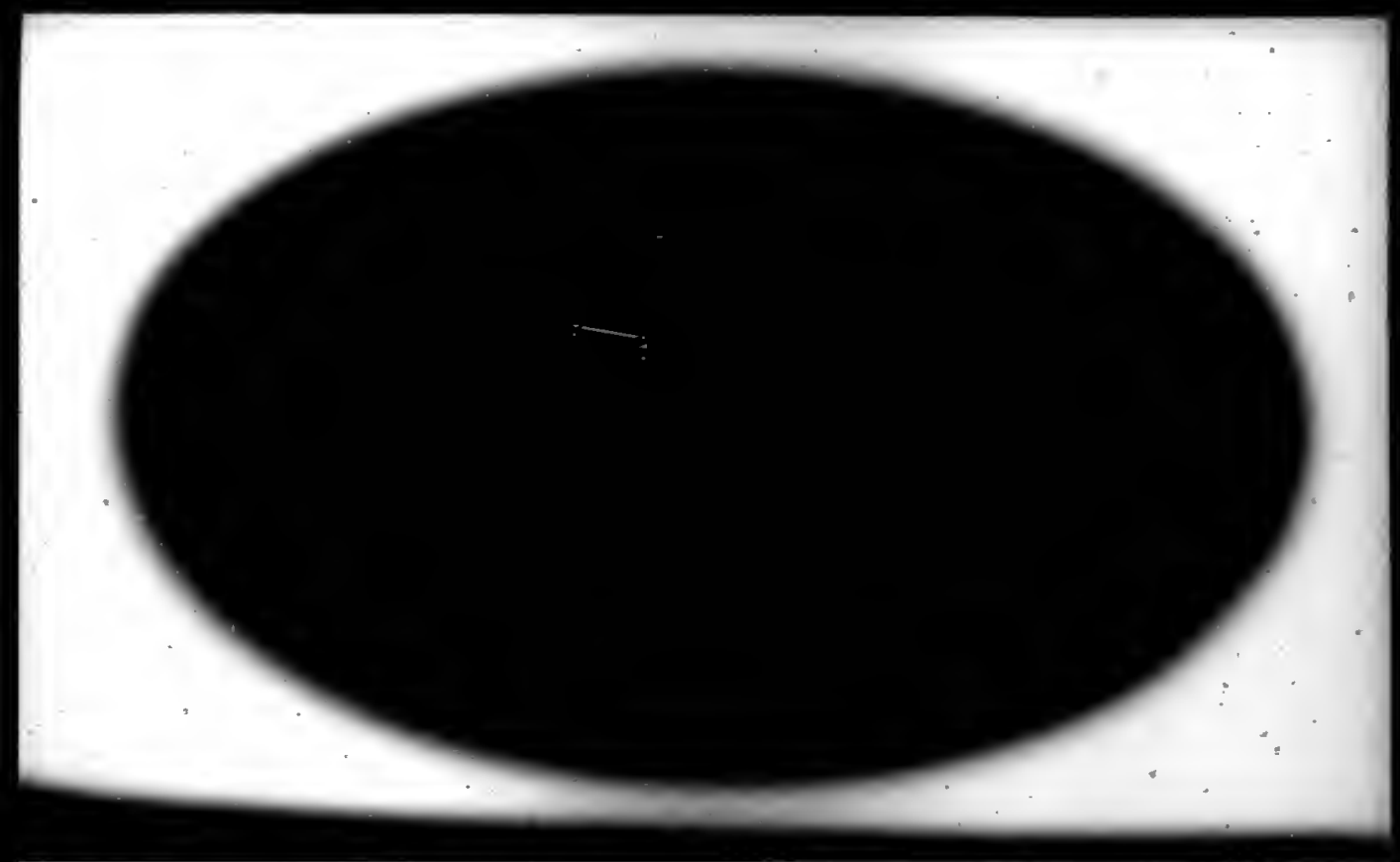

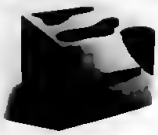

Funny how computers can make your life more difficult when their purpose is to make things easier. Well, the problem is you have all these different models and brands of portables that are unable to share components. So you're stuck with the hassle and cost of maintaining a huge inventory of spare parts. Now here's the solution. Gateway. Simply put, Gateway offers portables that can share components. AC adapters and battery packs. Memory and hard drive kits. Even Gateway™ Solo™ Full and Mini Docking Stations. Those days of wading through a mess of hardware are over. Ahhh ... life is good.

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# Researchers' merger spurs 'net collaboration

▸ *First aim is to expand extranet projects*

*By Carol Sliwa*

IN A MOVE that could spark some innovative information technology projects — beginning with the expansion of an extranet for collaborative engineering — two industry-funded research groups plan to merge, *Computerworld* has learned.

InfoTest International, a smaller IT-focused consortium funded by vendors such as Hewlett-Packard Co. and Bay Networks, Inc., is merging with the National Center for Manufacturing Science (NCMS), a larger group that concentrates on manufacturing, but not necessarily computer technology.

The first result of this pooling of knowledge will be a bid to extend InfoTest's current extranet test project to include automakers that belong to NCMS, officials said. The goal is to evaluate the business value of collaborative engineering and other manufacturing processes over the Internet.

**"The goal is to share the expertise across different segments of the manufacturing industry"**

InfoText's Enhanced Product Realization extranet, launched in September 1996, was designed to help manufacturers, their suppliers and customers securely share computer-aided designs over the Internet rather than use more expensive leased lines.

"It's cheaper to do a trial with a group of companies than to do it yourself," said Troy Eid, InfoTest's chief operating officer. "The goal is to share the expertise across different segments of the manufacturing industry."

The project would seek to expand on that work, encouraging collaboration among automakers on every aspect of the manufacturing process. NCMS later expects to offer the extranet tools to all manufacturers.

NCMS, based in Ann Arbor, Mich., wants automakers to participate because they represent a significant part of the manufacturing industry and have a special expertise in electronic data interchange and virtual simulation.

"But, if this isn't an exact fit with the auto industry strategy, then NCMS would explore this with other industries such as consumer products, consumer electronics and health care," said John Sheridan, acting director of the information technology sector of NCMS.

**SPECIAL INSIGHT**

"Heaven knows, going globally, communications and the movement of information and data around the world is a huge problem," said Jerry Harvey, executive director of manufacturing engineering, operations and integration at General Motors Corp.'s North American operations in Warren, Mich. "And InfoTest has some special insight into how to do that using the Web and the communications infrastructure brought by the Web."

GM has manufacturing facilities in more than 20 countries, and the company needs to solve the problem of communicating and exchanging design information and technical developments among suppliers, tooling and equipment personnel and various engineering groups, Harvey said.

"If you can do it over a network, you can do it over an extranet," said Ezra Gottheil, an Internet analyst at Hurwitz Group, Inc. in Framingham, Mass.

The one drawback, at least in the near term, could be bandwidth, he cautioned. "If timing is critical, you probably wouldn't want to use the open public Internet," Gottheil said.

Other projects that the newly merged NCMS/InfoTest hopes to work on include Internet-based computer chip design and extranet-based sharing of information on environmentally sensitive design.

The NCMS has 178 members, including AT&T Corp., Eastman Kodak Co., General Motors Corp., Lockheed Martin Corp., United Technologies Corp. and Westinghouse Electric Corp. □

UPFRONT

# Take a pass on 5.0

The news that Microsoft is waffling on the release date for Windows NT 5.0 should come as no huge surprise. But it should be cause for concern to any IS manager who's betting a project (or a career) on a successful NT 5.0 implementation.

Microsoft has pushed back to the first half of next year the second beta test of what Bill Gates has called the most important release of Windows NT since Version 1.0 in 1993. That's at least the third delay of NT 5.0, and it's no longer clear when the product will ship.

The change of tune is startling, given that Microsoft officials confidently forecast a third-quarter 1998 delivery just three months ago. And it indicates that NT 5.0 has turned out to be much more complicated than Microsoft expected.

**Regard the first release with caution.**

That's what is so troubling. NT 5.0 is, indeed, a beast of an operating system. With more than 20 million lines of code, it's as big as IBM's MVS. But with just six years of practical field experience, it's considerably less mature. The enhancements promised in the new version are mainframe-class features: eight-way scalability and enterprise-level directory services. But they also are the least likely to have been wrung out in field testing. After all, who's going to run big, critical applications on an unreleased operating system?

IS managers should regard the first release of NT 5.0 with caution. It won't have had rigorous testing in high-capacity, bet-the-business kinds of applications. Microsoft also has a history of shipping major new operating system releases that aren't quite stable.

Wait this one out, let other people wring out the bugs and wait for Version 5.1. Products produced under time pressure usually aren't as good as they should be.

**Paul Gillin, *Editor***
**Internet: *paul_gillin@cw.com***

THE FIFTH WAVE
BY RICH TENNANT

"You've done a wonderful job using the Web to improve your Math, Science, Social Studies, even your art and music grades. By the way, is there a hair styling site on the Web?"

E-mail Rich Tennant at thewave@tiac.net

# California dumps $100M deadbeat dad tracking plan

▸ *Terminates contract with Lockheed Martin*

*By Patrick Thibodeau*

**WHAT KILLED SACSS?**

- Inflexible federal rules that forced California to adopt a system that couldn't scale to needed size.
- A federal deadline that had every state competing for limited vendor resources.
- Users didn't want a complex, DOS-based system.
- Numerous system problems, from slow speed to data loss.
- Users were left out of the decision-making process.

WHEN CALIFORNIA killed its huge child-support automation project last week, it put people such as Pedro Marenco in a tough spot.

Sacramento County's child support bureau, where Marenco is the systems administrator, held off on year 2000 compliance efforts in expectation that the State Automated Child Support System (SACSS) would replace its legacy system with a 2000-compliant system.

Marenco and systems administrators in many of California's counties must now scramble to repair their old systems or to find new ones to handle child-support payments.

But Marenco said he agrees with the decision to ditch the statewide system.

"It never really worked. It would have been a tremendous disservice to continue with a system that was flawed basically from the beginning," Marenco said.

The state terminated its contract with Lockheed Martin IMS in Teaneck, N.J., for SACSS, which was intended to provide seamless tracking of deadbeat parents in the 58 counties in the state.

But after four years and an investment of $100 million — the original estimate for the project — the system was up and working in only 17 counties.

**AWAY FROM DOS**

A Lockheed spokesman said the California counties wanted to move away from the system architecture of dumb terminals and DOS-based software originally specified. Also, he said there was a conflict between the state's interest in a statewide system and the various counties wanting to do business their own way.

The failure of California's system underscores the problem with child-support systems nationwide. Many states have been scrambling to meet a deadline that Congress passed last month to develop statewide automation systems. Only 18 states have developed systems that have passed muster.

"I don't think anybody has given the Congress the clear picture of how difficult these systems are [to build]," said Patrick Harrington, an official at the Arizona Department of Economic Security in Phoenix.

The Arizona child-support system handles 300,000 cases and is the largest computer system in the state when all the data elements are considered, he said.

> "The whole project moved so slowly that by the time things were installed, the computer was out of date."
> Earl Adams, Sutter County, district attorney

California's system — modeled after one developed for Maine and New Hampshire — was based on specifications written in the early 1990s and thus reflected older technology.

When SACSS arrived in Sutter County, Carl Adams, the county district attorney, couldn't wait for it to leave.

"The whole project moved so slowly that by the time things were installed, the computer was out of date," he said. Adams' department now uses a paper-based system.

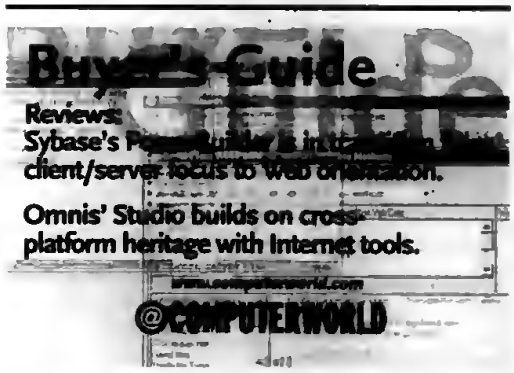
**MANY GLITCHES**

Ventura County, the largest county in California that runs SACSS, experienced numerous glitches. For example, the system erased $17,000 in back child-support payments from one account.

Collections have declined, and Stan Trom, the director of the child-support division, blames the SACSS fiasco.

California has set a 90-day deadline to design an alternative system. One option is to adopt an existing system from another county that has proved itself.

A consultant's report completed this summer said the system could be saved, but Lockheed and the state couldn't come to financial terms. □



# Digital users wary of Cabletron deal

*By Bob Wallace*

CABLETRON SYSTEMS, INC.'S purchase of Digital Equipment Corp.'s networking division last week for $430 million left some Digital users wondering who will protect their investment.

Air Products' Virgil Palmer: Cabletron will "succeed if they leave what works well alone"

Cabletron said the Digital business unit will operate as a separate division within Cabletron and will sell Digital-branded network products and complementary Cabletron products.

"What does this mean, especially if you're not a Cabletron fan?" said Michael Felerski, systems network manager for Butler County, Ohio. "This doesn't mean everyone's going to jump on the Cabletron bandwagon. It really opens up doors to other vendors."

Butler County uses a mix of Hub 900s and 90s from Digital. Felerski said Cabletron can be pricey and tough to work with.

"We're going to look elsewhere," Felerski said. "We are definitely concerned about this situation."

Digital's networking unit makes, sells and distributes switches of all sizes, as well as hubs and routers. It won acclaim for its high-end GigaSwitch, which is widely used by Internet service providers.

Jim Hutchinson, network manager at Children's Hospital in Boston, said he is worried about overlapping product lines.

"What I'm concerned about is [which] products may survive and which may not," Hutchinson said.

NETWORKING INDUSTRY

**BOTTOM LINE**

The hospital has invested between $2 million and $3 million in Digital networking offerings. "I need to know what's up with both product lines so I can decide whether or not I have to start looking for another vendor or vendors," Hutchinson said.

Cabletron CEO Don Reed said there is overlap and that "it'll continue to be reviewed." He also said the two product lines eventually will be merged. But Cabletron didn't lay out a product road map for Digital's networking products.

"They'll succeed if they leave what works well alone," said Virgil Palmer, director of telecommunications and networks at Air Products & Chemicals Corp. in Allentown, Pa., a GigaSwitch user. "Digital products work well, and we gain a lot of value-add from [Digital's] service and support."

Palmer said Cabletron would be making a big mistake if it didn't ask for input from Digital customers before developing new products for that installed base. "They bought a fairly large installed base through the deal. They have to make sure they have customer buy-in on any new product direction."

Digital will continue to provide services for its products and will service Cabletron products in many regions worldwide. It also creates a reseller and services contract between the two vendors. □

# Novell boosts power with new replicator

▶ *Stand-alone product eases network tasks*

*By Laura DiDio*

NOVELL, INC. last week introduced the latest version of Novell Replication Services (NRS), which gives users a wider, more flexible array of directory replication options and performance boosts of up to 40%.

Novell has added new capabilities to NRS, including the ability to replicate any and all files and directories.

NRS 1.2 is a stand-alone product that centrally automates the process of selectively replicating groups of files or directories. It also lets users automatically upgrade software from one NetWare server to other NetWare and Windows NT servers in the same Novell Directory Services (NDS) tree.

That eliminates the need for network administrators to manually replicate the NDS tree on every NetWare server, said Jim Greene, a Novell product marketing manager.

Edward Segraves, a network administrator at Hewitt Associates LLC in Lincolnshire, Ill., said NRS is especially helpful in automating software upgrades. The firm has numerous branch offices where manual replication of network and World Wide Web-based data was formerly "a full-time job," Segraves said.

"NRS lets me provide up-to-date information to my users consistently and efficiently. It saves us thousands of dollars in network management costs associated with data replication," Segraves said.

NRS 1.2 offers significant enhancements over Version 1.1, which began shipping at the end of August. Novell has added new capabilities such as the ability to replicate any and all files and directories.

Fault tolerance also has been improved. In the event a wide-area link fails during the replication process, NRS 1.2 will automatically restart as soon as the WAN link comes back up, ensuring no loss of data.

NRS 1.2 costs $995 per server. Users must buy at least two servers. □

DISK ARRAYS

# EMC takes first step to Fibre Channel

*By Tim Ouellette*

EMC CORP. this week will join the list of vendors adding high fibre to their storage lines.

The Hopkinton, Mass., company will announce support for Fibre Channel interconnects between its Symmetrix disk arrays and Sun Microsystems, Inc. Solaris servers.

Fibre Channel interconnects promise to let users overtome the current cabling length, device and performance limitations imposed by the SCSI standard found in most storage systems.

**STILL TESTING**

So far, users mostly are in the testing mode, because some servers and adapters today can't take full advantage of the performance gains that Fibre Channel affords [CW, Nov. 10].

"We aren't maxing out on I/O with our [EMC] Symmetrix yet, even without Fibre Channel," said Ernie Miragliotta, regional director of information systems at Bell Atlantic Mobile in Morristown, N.J.

But managers of large data centers — EMC's prime customer base — said the technology's distance and connection flexibility will provide better storage capabilities for the growing number of Unix and Windows NT servers that enter the data center.

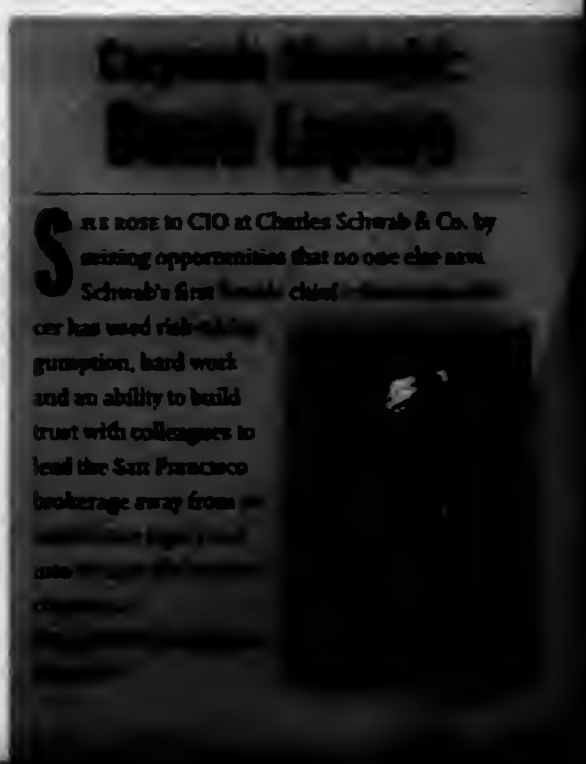
EMC joins competitors such as Sun, Digital Equipment Corp. and Data General Corp., which already offer Fibre Channel disk subsystems.

EMC's ace in the hole is that its Symmetrix systems will support channel connections to mainframes and SCSI and Fibre Channel server connections — all from one box at the same time.

And through a manufacturing deal with Hewlett-Packard Co., the Symmetrix arrays that Hewlett-Packard resells already support Fibre Channel for HP-UX servers.

EMC is targeting Sun servers on its own because a large portion of its open systems storage business is connected to Sun servers, said Thomas Lahive, an analyst at Dataquest in San Jose, Calif.

All new Symmetrix arrays will include the Fibre Channel support. Current Symmetrix customers can upgrade their systems with a two-port adapter for $35,000. □



# Network security interest on rebound

*By Laura DiDio*

COMPUTER NETWORK security is back on the front burner, thanks to the Internet.

After a lull in the early 1990s, membership in security organizations and conferences has soared in the past year.

The surge in Internet use, particularly for electronic commerce, has made companies increasingly concerned about the threat of hacker attacks.

In response, users are rushing to computer security conferences and training classes, accessing computer security-related World Wide Web sites and joining industry groups to get the latest information.

"You bet we're concerned. That's why I'm here," said Randy Bell, a systems programmer in charge of security at the Church of Jesus Christ of Latter-day Saints in Salt Lake City.

"Security is a No. 1 priority for us, and we're doing everything we can do keep abreast of the latest tips, tricks and products to safeguard our networks," said Bell, who was attending the 24th Annual Computer Security Institute (CSI) conference in Washington last month.

**When users were asked about security spending:**

**58.5%** will increase security budgets next year

**35.3%** will keep security budget the same

**5.9%** will cut security budget

Base: 413 Fortune 1,000 companies

Source: Computer Security Institute, San Francisco; Zona Market Research, Inc., Redwood City, Calif.

The latest CSI show drew a record 2,000 attendees, said Patrice Rapalus, CSI's director. "We just keep on adding sessions and partnering with firms like Zona Research, Inc. to publish more market research reports," she said.

"The pressure to keep abreast of security issues is tremendous. I belong to a number of organizations, subscribe to various publications and attend as many conferences like the CSI show as I can. And it's still not enough," said Lt. Christopher Mahnowski, commanding officer of the Computer Investigations and Technology Unit of the New York City Police Department.

Computer security today is more than just viruses, Rapalus said. Users now must be familiar with intrusion detection, firewalls, biometrics, audit trails, cryptography, encryption and digital signatures.

"The truth is, most people don't have adequate security in place. Worse still, they often don't even know where to start," said Mark Pollitt, a special agent at the Federal Bureau of Investigation in Washington. "And if businesses can't police their own networks and give us information on tracking hackers, then law enforcement agencies such as the FBI are limited as to what action they can take legally against network intruders."

**"The truth is, most people don't have adequate security in place. Worse still, they often don't even know where to start."**
**– Mark Pollitt, FBI**

"Until now, security budgets have remained stagnant. Security professionals don't have enough time for training, and yet there's a lot more going on," said Scott Gordon, vice president of the National Computer Security Association (NCSA) in Carlisle, Pa.

The NCSA's membership has doubled in the past two years to more than 3,000. Gordon said the NCSA has "dramatically expanded" the depth of its security program offerings. It has an in-house lab that certifies the major antivirus, cryptography, firewall and biometrics products.

Most recently, the NCSA began certifying the security of user Web sites. For an annual fee of $8,995, the NCSA will provide companies with a set of guidelines, and then NCSA security engineers will conduct a remote assessment of the user's Web server security, Gordon said.

The NCSA also has increased its quota of conferences to nine this year from five in 1995. And it recently launched the *Information Security Magazine*.

The organization also is partnering with trade shows such as Internet World '97 and will host specialized security sessions during that conference next week in New York.

Officials at RSA Data Security, Inc. in Redwood City, Calif., said the company's fourth annual RSA Data Security Conference Jan. 13 in San Francisco promises to be "the biggest one yet," attracting more than 3,000 users. □

# ESD technology raises concerns

*▶ License management issues a snag; IS control worries some*

*By Gordon Mah Ung*

ELECTRONIC SOFTWARE distribution (ESD) is becoming a reality, but major software vendors and corporate customers are taking the cautious approach.

The benefits are obvious: For network managers, ESD eliminates the need to physically install software on user desktops and provides a potentially easy way to keep track of licenses and overall software assets.

Indeed, users may find license management to be the primary allure of ESD. Companies should be able to automatically receive software online that also will be automatically tracked.

"The savings on the customer end is in large corporate accounts," said Jeffrey Tarter, editor of the computer industry newsletter "Softletter" in Watertown, Mass. "Their cost of handling physical product and installing it and copying serial numbers and putting them in a database somewhere is horrendous."

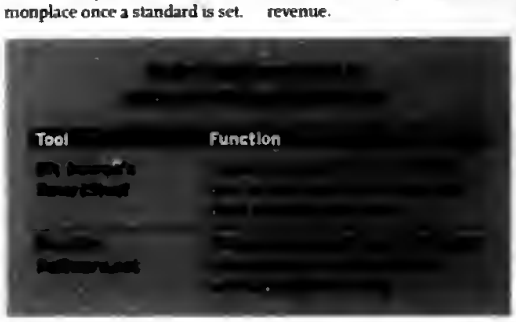
For software vendors, ESD offers the opportunity to shave packaging and distribution costs and to open up a new avenue for establishing relationships with customers. Even so, pricing is unlikely to drop any time soon.

Dennis Murray, head of cooperative technology for clinical and regulatory affairs at Novartis Pharmaceuticals Corp. in East Hanover, N.J., said he looks forward to anything that will help lower the cost of managing software.

But he said he has concerns, too. Until license management issues are sorted out, ESD won't be as useful as it is proclaimed to be, he said. Murray added that he would like to see ESD factor in concurrent licensing structures.

Murray said he also is worried about drawing the proper balance between letting users install their own software and having information systems manage the installation. If IS is in total control of what is installed over an ESD method, it must be responsive to what end users need, not what is convenient for IS, he said.

Fred Winograd, chief technologist at NationsBanc Montgomery Securities, Inc. in San Francisco, said he believes that distributing software licenses electronically will become commonplace once a standard is set.




But he added that ESD technology must dovetail with the company's existing internal software distribution system.

Although ESD promises users some clear management efficiencies, it probably won't make software cheaper, because vendors don't want to alienate partners in non-electronic distribution channels.

Pamela Roberts, director of electronic commerce at Symantec Corp. in Cupertino, Calif., said, "These people are selling millions of yellow boxes a year. I'm not going to upset that."

Symantec offers most of its products over its World Wide Web site, but Roberts estimated that electronic sales account for less than 2% of Symantec's total revenue.

"I know we're just at the very beginning of it," Roberts said. "Once corporations realize the benefits of [ESD], they're going to demand that the channel does it."

Microsoft Corp. said its work on ESD is just beginning. "It's a premature technology right now," said Neil Farnsworth, a general manager at Microsoft's end-user customer unit. "We think the future's very bright."

According to Tarter, an estimated 60% of Microsoft's new sales in application software is just licenses. Currently, Microsoft mails certificates giving companies permission to install new copies from their existing sets of CD-ROMs.

Another benefit to vendors is the chance to establish better relationships with customers.

Tarter cited one company that offered software to customers through direct electronic mail. The company knew within 48 hours which of the three versions of the software sold the best.

Roberts said electronic distribution could cut the turnaround time to seconds instead of weeks.

"There are no standards, and a bazillion people are trying to figure this out," Roberts said.

One in five consumers already has purchased software online, Tarter said.

A survey of software vendors asking when they expected to earn one-third of their revenue through electronic sales indicated 15% already had achieved it, Tarter added. □

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# NT delay bugs users

*By Laura DiDio*

POSSIBLY THE ONLY unexpected news connected to Microsoft Corp.'s latest delay of Windows NT 5.0 is the reaction of some users who said it is the last straw. Under pressure to make upgrade decisions, some users are throwing in the towel and plunking down cash for alternative systems, such as Novell, Inc.'s IntranetWare.

Users, analysts and the press repeatedly were told — albeit unofficially — that the commercial release of NT 5.0 was supposed to ship in the first half of next year. Microsoft officials said the second beta of the product will now ship during that time frame. Analysts, in turn, predicted it will be the end of next year before NT 5.0 ships (see story at right).

**"This latest delay is outrageous. We're not waiting; we have business problems that need a solution today"**

"This latest delay for NT 5.0 is outrageous. We're not waiting; we have business problems that need a solution today, and we're moving ahead with a combination of Unix and Novell's IntranetWare," said Mike Crowley, chief information officer at Rich Products Corp. in Buffalo, N.Y.

Users typically gripe about Microsoft's delivery delays, but its dominant position as a de facto standards setter and its widespread prevalence across the desktop leads many to grit their teeth and readjust their plans.

**BREATHING ROOM**

There are even some users, tired of struggling to keep up with the ever-constant wave of new technology, who said they welcome the delays and the breathing room they provide.

"I'd rather Microsoft push back the delivery date of NT 5.0 and get it right — that means bug-free right out of the box," said Richard Schell, vice president of information systems at ABC Television Network Group in New York.

But has NT 5.0 delivery slipped to the end of next year? Mike Nash, group product director at Microsoft, last week denied reports that quoted multiple Microsoft officials as saying Windows NT 5.0 Beta 2 was delayed.

"We did not announce a product slippage for Windows NT 5.0. We never gave a ship date for Beta 2. Our first commitment is to quality," Nash said.

But that isn't the message reporters and analysts took away from Microsoft at Comdex/Fall '97. And Nash's explanation didn't assuage some fed-up users.

"Microsoft is notorious for ship delays on all of its products, which makes the NT 5.0 slippage harder to take," Crowley said.

Crowley said lately his confidence in Microsoft also has been undermined by its expansion into so many new markets. "At the end of the day, I'm just glad I still have choices: Novell, Netscape Communications Corp. and Unix. Competition keeps vendors honest," Crowley said.

**NOT A DRESS REHEARSAL**

Scott Krall, network administrator at Weyerhaeuser Co., a paper manufacturer in Valley Forge, Pa., agreed. "I'm aggravated that Microsoft keeps having endless dress rehearsals for Windows NT 5.0 and still we don't see product. To add insult to injury, Microsoft has failed to strengthen the basic functionality of NT 4.0," Krall said.

Like Krall, Schell criticized Microsoft for the current lack of management tools and resources in Windows NT 4.0. "I'm far more concerned about the missing pieces in NT 4.0 than I am about getting the Active Directory and Active Desktop in Windows NT 5.0," Schell said. □

## FAQs: Microsoft's NT 5.0

***Q: When will it ship?***
**A:** Microsoft officials have said the second beta, which was widely expected to arrive late this year or early next year, will now ship in mid-1998. The product is now expected to ship in late 1998.

***Q: What's in Windows NT 5.0?***
**A:** The main features are the Active Directory; the Active Desktop with its direct links to the Internet Explorer browser; the IntelliMirror facility, which provides users with advanced storage and synchronization capabilities among Windows NT Servers; Wolfpack clustering; and advanced Kerberos security.

***Q: Why are these features so crucial?***
**A:** Microsoft is behind competitors such as Novell, Inc. in providing businesses with a large-scale directory services component such as Novell Directory Services. Directories allow administrators to manage user identities, configurations and security information from one location, rather than having to log on to multiple servers to make changes.

***Q: Is there anything else missing in Windows NT 4.0 that users must have?***
**A:** Windows NT 5.0 is slated to include the ability to impose quotas limiting the amount of disk space a user or group can consume. It also is expected to include a defragmentation utility that can clean up hard drives to conserve space and improve performance. Both facilities have been shipping in rival operating systems for more than a year. Windows NT 5.0 also will include power management for laptops.

***Q: How does the slip in the ship date affect other Microsoft applications, such as BackOffice?***
**A:** The advanced features of many of the next-generation of BackOffice server suite products depend on Windows NT 5.0 for scalability, transaction processing and performance. Delays in NT 5.0 could also mean delays on updates of the whole suite.

# Sabre deems outsourcing deal a success

*By Matt Hamblen*

WHEN The Sabre Group outsourced its travel reservations network 16 months ago, it took a big risk that something could go wrong on its famous, mission-critical Sabre network.

But so far, Sabre executives are mostly happy with the results.

The combination of staffing decisions; low prices, a well-defined contract and service-quality agreements has made the deal a winner, Sabre officials said.

"Transferring responsibility for the network has been quite an undertaking, yet more than one year later, the results are a cause for celebration," said Don Wilkins, senior vice president of network services at Sabre in Fort Worth, Texas. He explained that making those network connections was more difficult than expected.

**Tips for negotiating carrier service agreements**

- Seek shorter-term deals from companies in the midst of mergers.
- Insist on getting rates equal to or less than other carrier customers.
- Seek money-back guarantees for outages and slow service.

**HIRED HAND**

Sabre in July 1996 outsourced the North American portion of its Sabrenet data network, which links 22,000 travel agencies with airlines for flight reservations.

A partnership of Paris-based airline network SITA and Atlanta-based Equant essentially purchased the network for $450 million for seven years. Sabre pays millions of dollars per month to ride the network.

Analysts and Sabre officials said a key element in the deal's success was that Sabre transferred 80 of its network engineers to SITA.

"We have been able to deal with people we know," Wilkins said.

Sabre also struck an attractive deal for monthly network services at rates several percentage points below the competition, according to company officials. They declined to state specific rates or savings.

Under the contract, Sabre also has the right to seek lower rates if it finds a competitor getting a better deal.

The complex legal agreement is filled with service guarantees, legal protections and refunds for service outages and slow response times.

**THE NITTY-GRITTY**

The deal took months to negotiate as Sabre lawyers and technical experts picked over definitions for terms such as "service level" and "prime time" to protect Sabre's interests. (Prime time for a customer might be 6 a.m. to 6 p.m. but only 8 a.m. to 4:30 p.m. for a carrier.)

**COMMON CARRIER**

Sabre picked SITA because it worked with the SITA network abroad and because both companies use Northern Telecom, Inc. switches, officials said.

SITA operates a huge voice and data network, with 120,000 users in 225 countries and help desks in 150 countries.

But analysts said SITA — founded in 1949 by 11 European airlines — has a relatively small network in North America and isn't well-known in the U.S.

With the addition of Sabrenet, SITA and Equant have resold network capacity to companies such as Xerox Corp. for electronic document distribution. □

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FRANKLY SPEAKING

# Giving IS the business

FRANK HAYES

SAP R/3 skills carry a salary premium of 19%, according to *Computerworld*'s latest annual skills survey. Knowledge about Lotus Notes adds 15% to what an IS worker can command. A Windows NT background boosts salary by 9%.

But if you're trying to get a job on the help desk at Hilton Hotels, none of those skills will do you any good unless you've also worked behind a hotel front desk or reservations counter, or somewhere else in the hospitality industry.

In fact, since 1995, the company's policy for help desk jobs has been to pass over technical wizards with no hotel experience in favor of less technically skilled employees who have a background in the business.

What are these guys, nuts? Don't they know there's an IS labor crisis going on?

Alaska Airlines is even crazier. A few years ago, the company took users who had lots of reservations experience and an aptitude for computer programming and trained them in Visual Basic. The experiment had mixed results, and an Alaska Airlines spokesman says the company won't try it again. But several of the trainees did end up as full-time programmers.

**We're plenty efficient in IS. Trouble is, we're not very effective.**

Technology is changing at a breakneck pace. It's already tough to hire and hang on to skilled IS people. So why are these shops making it that much harder for themselves by requiring business experience, too?

After all, this approach creates two classes of IS employees — those with business experience and purely technical staffers — with two different cultures. Projects crawl as trainees slowly come up to speed.

And the cost of training technical novices burns up budget money that could be used a lot more efficiently hiring fully qualified technical people in the first place.

*Efficiently*, yes — and that's the problem.

We're plenty efficient in IS. Trouble is, we're not very effective.

IS shops love efficiency. We've got systems and schedules and processes for everything — writing programs, maintaining networks, handling user complaints — and it all runs like clockwork (or at least it's supposed to).

But the reality of business, of sales and products and customer service, isn't much like clockwork efficiency at all. That's a chaotic, competitive world out there, where success is measured by how well you make customers happy and persuade them to spend more money.

Fully filled data queues may make for an efficient system. But long lines out in the real world just lose customers.

Rolling back a transaction is inefficient in the data center. But adding last-minute purchases at the cash register is a very effective way of making profits.

Hilton and Alaska Airlines have figured that out. They know it's worth almost any price to get real-world user expertise into the process of building and running systems.

They aren't alone. Sears, Toys 'R' Us and Liz Claiborne are dragging users out of their departments and into IS to help design systems. Reebok even pays users' salaries out of the IS budget while their expertise is being tapped.

Efficient? Not by half. Users bring conflict and tough, unpleasant reality into what your typical orderly IS type wishes were a delicate, finely tuned development process. They make messy demands, and they don't understand the value of a solid set of skills in SAP or Notes or NT.

But get used to the idea — and get ready for the reality. It's coming fast, and the days of giving meaningless lip service to user-focused systems are over.

Either you start sacrificing some efficiency to make your systems more effective for users, or your competitors will roll over you — not just in the IS shop, but in the real business world, too.

And all those SAP and Notes and NT skills won't be very efficient if you're out of business. □

*Hayes is Computerworld's West Coast bureau chief. His Internet address is frank_hayes@cw.com.*

SHORTS

## Clone maker losing power

Power Computing Corp., the beleaguered Round Rock, Texas, computer maker, has stopped selling its Windows-based PowerTrip notebooks. Power Computing, which once controlled 12% of the Macintosh market, will lose all licensing rights to build Macintoshes next month when its agreement with Apple Computer, Inc. runs out. The company hasn't stated that it will close its doors, but a Power Computing official said the company is reassessing its business plan.

## Worker charged in Forbes hack

A computer contractor has been charged with damaging file servers at Forbes, Inc. in New York after hacking his way into the network the day he was fired, according to court documents. FBI agents arrested George Parente of Queens, N.Y., on suspicion of computer sabotage. Parente has denied the charges. Court documents said Forbes workers found that file allocation tables had been wiped out on five of eight file servers. Agents subsequently found literature on hacking and internal Forbes documents on Parente's PC, according to the complaint.

## New security guide available

Meta Group, Inc. in Stamford, Conn., has released "Security in Enterprise Computing: A Practical Guide." The $2,500 publication helps administrators analyze their current and future security requirements, prioritize action items and plan and market a security architecture.

## Scientists urge veto of theft bill

A group of computer scientists claims a bill passed by Congress would make it illegal to reproduce or distribute copyrighted documents electronically and has urged President Clinton to veto it. The "No Electronic Theft Act" would subject people who reproduce copies of material worth more than $1,000 to criminal prosecution. The Association for Computing in Washington said the legislation could lead to prosecutions against academics for sharing their published work with colleagues and students.

## Shop 'til you drop

Excite, Inc.'s World Wide Web site *(www.excite.com)* has launched a service that searches multiple sites across the Web to help customers comparison shop. Computers, books, movies and games are available now, with more categories in the works. The Excite Shopping Search comes from the company's recent acquisition of Netbot, Inc. Yahoo, Inc., meanwhile, announced a comparison-shopping product with Junglee Corp., using the Yahoo Visa Shopping Guide.

## Novell returns to profitability

Novell, Inc. earned $7 million in the fourth quarter ended Oct. 31, down from $59 million for the same period last year. The results came after two quarters of losses and were due in large part to massive restructuring and layoffs. The Provo, Utah, company posted a net loss of $78 million for the fiscal year on $1 billion in revenue. Novell was hit hard by a reduction in sales of its network operating system products earlier this year, the company said.

## MCI managers reap big bonuses

MCI Communications Corp. in Washington this week said it will pay some top-level managers bonuses worth 50% of their salaries this week and another 50% bonus late next year. The bonuses were designed to retain hundreds of top managers during final stages of the MCI/WorldCom, Inc. merger. Industry analysts say they doubt there is room for all the top managers of the two companies in the new entity.

## Chat spec is in the works

A group of about 40 vendors led by Microsoft Corp. is pitching an open protocol to standardize how applications such as "buddy lists" let you know that friends and business associates are online. The proposed specification, which the Internet Engineering Task Force calls Rendezvous Protocol, would improve interoperability between Internet chat programs.

## Informix updates Data Director

Informix Software, Inc. next week will announce a World Wide Web version of its Data Director software. The Web version automatically generates the SQL code needed to link applications to the Menlo Park, Calif., company's databases.

**SHORT TAKES** Honorio Padron has joined **CompUSA** in Dallas as senior vice president and chief information officer. Padron, who held a similar position at PepsiCo's Tricon Global Restaurants, Inc. unit, replaces James Infinger, who recently left to become CIO at Raytheon Co. in Lexington, Mass. ... John G. Stevenson, former vice president of information technology at Lennox International, Inc. in Dallas, has joined **Bristol-Myers Squibb Co.** in Plainsboro, N.J., as vice president of information management. ... **Hewlett-Packard Co.** last week cut prices on its OmniBook notebook PCs by up to 18%. The OmniBook 3000CTX was dropped to $3,899, and the price of the 2000CT was sliced to $2,199.

# "Psst . . . Wanna Buy Some Time?"

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# Improved service top-cited outsourcing goal

*By Jaikumar Vijayan and Thomas Hoffman*

CUTTING COSTS AND saving money are tumbling further down the list of reasons why companies choose to outsource their information technology operations, according to a new report from Dataquest.

A growing number of companies choose outsourcing for long-term strategic and competitive reasons rather than cost savings, according to the market research firm in San Jose, Calif.

The survey of 130 small, midsize and large corporations ranked costs and staff savings a distant 11th on a list of more than 15 reasons for outsourcing IT and business processes.

Topping the list were improved service levels, focus on core competencies, enhanced IT effectiveness and supplementing of existing IT staff.

The findings come at a time when a deepening resource crisis and severe skills shortage are raising the stakes for companies that outsource IT functions.

"Even a few years ago, companies were looking at outsourcing strictly as a way to take millions of dollars in costs off their bottom line," said Allie Young, an analyst at Dataquest in Westborn, Mass. "But as IT has become more integral to a customer's business strategy, so too has the value of outsourcing."

Take Nova Gas Transmission Ltd. in Calgary, Alberta, for instance. The company, one of the largest carriers of natural gas in North America, recently signed a $550 million outsourcing deal with IBM and DMR Consulting Group, Inc.

The move will let Nova trim a little off the $100 million it spends on IT operations annually, said Bruce McNaught, vice president of internal resources at Nova. But the main drivers behind the deal were quick access to SAP enterprise resource planning skills, specialized application development expertise and additional personnel to help with an overhaul of IT applications and infrastructure, he said.

"We are moving as an organization into new technologies and application development processes," McNaught explained. "Rather than reinvent the wheel, we decided we could use these two organizations to help put these things together." Playing into that decision was the difficulty in attracting, training and retaining skilled personnel, he added.

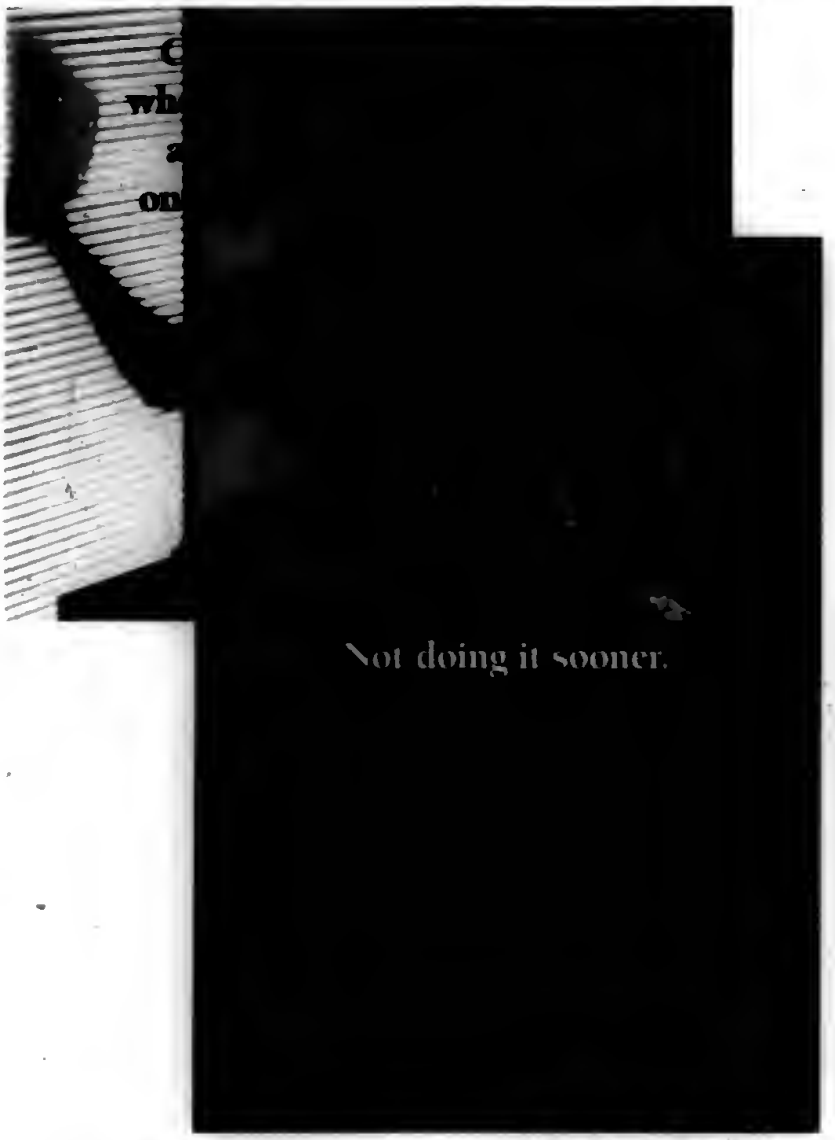
### DRIVEN BY TECHNOLOGY

Similarly, a recent outsourcing deal — estimated at more than $500 million — between the California State Automobile Association and MCI Systemhouse, Inc. was driven primarily by a technology overhaul and process standardization effort, said Leo Conner, chief information officer at the San Francisco association.

The association's outsourcing move will free up a core set of 30 IS staff to focus on long-term IT planning and strategic application development work. One of the immediate projects of the core group: to move the company from a mixed network of hardware, software and operating systems to a standard environment based on Windows NT.

"[Outsourcing] has allowed us to scale down our [IS] operations to a really small group of folks who will be responsible for the technical destiny of the company," Conner said. More than 230 other IS staffers were transferred to MCI as part of the deal.

A complete business process overhaul that led to an increased reliance on PCs drove Hartsville, S.C.-based Sonoco Products Co.'s multimillion-dollar desktop outsourcing deal with Entex Information Services in Rye Brook, N.Y. The move, announced in early November, was designed to let the $2.8 billion Sonoco standardize PC hardware and software in 160 locations and "provide a consistent way of providing services to every location of the company," said Bernie Campbell, CIO at Sonoco. □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TIOA

# Customers to Netscape: Just the browser, please

*By Barb Cole-Gomolski and Carol Sliwa*

EVEN AMONG its most loyal customers, messaging and collaboration servers can be a tough sell for Netscape Communications Corp.

Interviews with information systems managers and a report to be released this month by Rapport Communication in Roswell, Ga., indicated that companies that bought Netscape's intranet wares are reluctant to let go of products such as Lotus Development Corp.'s Notes or Microsoft Corp.'s Exchange in favor of Netscape's groupware.

GROUPWARE MARKET

Companies appear to be holding on to the more established collaboration products because they have more robust groupware features and broader third-party support.

Eli Lilly and Co. in Indianapolis picked Notes last year for messaging and groupware even though it has more than 15,000 Netscape browser users.

"We felt the direction that Lotus was taking in terms of conforming with Internet standards and Web-enabling their system was stronger [than Netscape's]," said Jim Byers, a program manager at the pharmaceuticals giant. It helped that there were more Notes applications on the market and Notes services were readily available.

J. F. Sullivan, group product manager for messaging at Netscape, said his company's messaging software lags behind Notes in terms of third-party support. He said Netscape next year plans to ship a software development kit for developers to write add-ons for Messaging and Collabra servers.

### ADVANTAGES

Netscape's pitch is that because its messaging products are built from the ground up to run on Internet protocols, they are cheaper to deploy and manage than products such as Notes and Exchange, which still have proprietary underpinnings.

But users cited poor integration among Netscape's collaboration products, weak electronic-mail migration tools and a lack of strong management software as factors that have kept them away from the company's collaboration tools.

### CATCHING UP

Because Lotus and Microsoft have scrambled this year to improve the Internet support in their messaging software, Netscape's advantage in this area is diminished, users said.

Several companies that use Netscape's messaging products said they are pleased with the results. But even they sometimes fall back on more established groupware offerings.

Scotia Capital Markets, a division of Scotiabank in Toronto, has about 2,700 users on Netscape's Communicator and Messaging Server for E-mail and intranet applications.

"It has been extremely low overhead," said Gail Smith, senior vice president of front-office development at the bank. But the division is considering putting up a Domino server because it would better support some forms-based groupware applications, Smith said.

US West Communications, Inc. in Denver also will eventually deploy about 30,000 seats of Netscape's E-mail but has an alternative platform — Lotus Notes — for users who need E-mail and groupware, said Barbara Bauer, senior director of corporate systems development.

"If you're talking about [pure] messaging, I think Netscape is a clear winner both in terms of functionality and cost of ownership," Bauer said. But compared with Notes, Netscape "has not developed the same application development environment Notes has had for several years," she said. □

**WHICH MESSAGING VENDOR SHOULD YOU PICK?**

| Vendor | If you have |
|---|---|
| Netscape | ▸ Web-based intranet services as your highest priority |
| | ▸ Pure Internet standards that are deemed critical |
| | ▸ A relatively "clean slate" |
| Lotus (Notes) | ▸ A large base of CC:Mail or IBM host products |
| | ▸ A large mix of legacy E-mail products |
| | ▸ Integration services and global support |
| Microsoft (Exchange) | ▸ A Windows NT Server strategy |
| | ▸ Microsoft Office as the dominant suite |
| | ▸ A single-vendor solution |
| Novell (GroupWise) | ▸ A wide deployment of NetWare |
| | ▸ Novell Directory Services as your strategic directory |
| | ▸ Or want document management and an integrated in-box |

Source: Rapport Communication, Roswell, Ga.

• Last year's pilots are this year's deployments

# Exchange's NT link helps put squeeze on Notes

*By Barb Cole-Gomolski*

DESPITE A ROCKY start, Microsoft Exchange is rapidly picking up market share and is now selling at about the same rate as its biggest rival — Notes.

Microsoft Corp.'s Exchange groupware software installed base has grown tenfold over the past year, said users and analysts who cited several factors.

Exchange shipped about 18 months ago, about the time it has taken some large companies to choose a product, conduct a pilot and begin a widespread deployment.

Many companies also picked Exchange this year because they believe Microsoft's promise that Exchange's tight integration with Windows NT will reduce their cost of ownership.

**EXCHANGE HOLDS ITS OWN**

| | Notes | Exchange |
|---|---|---|
| Average number of hours per week that the directory is out of sync | 20 | 8.5 |
| Percentage of downtime incidents that last less than one hour | 42% | 44% |
| Average number of hours of directory maintenance per 100 users | 10 | 8 |

Base: 66 IS professionals

Source: Creative Networks, Inc., Palo Alto, Calif.

The work that Microsoft is doing to integrate Exchange with Windows NT 5.0 and the Active Directory will significantly lower administration costs, said Kirk Reeves, a systems engineer at The Kentucky Department of Education in Frankfort, which is moving more than 200,000 users to Exchange.

Exchange also proved to be a solid electronic-mail system, whereas Notes is known more for its groupware capabilities, said Guy O'Brien, a network manager at the U.S. Department of State in Washington.

Also this year, several large companies — including The Boeing Co. in Seattle and General Electric Co. in Fairfield, Conn. — picked up the pace of their Exchange implementations. Each site rolled out close to 100,000 seats of Exchange.

"Exchange was always meant to be a corporatewide decision, and that takes time and involves big committees," said Eric Arnum, editor of "Electronic Mail and Messaging Systems," a newsletter in Washington. Those pilots turned into deployments this year, he said.

As a result of such activity, there were 7.2 million seats of Exchange in use at the end of September, although Notes is still the leader in the messaging market with 15.3 million seats, Arnum said. Analysts said the two products will keep pace with each other for the next year.

### CORRECT NUMBERS?

But some users disputed the 7.2 million figure because it is based on the number of BackOffice licenses sold, and it is possible to buy BackOffice and not use Exchange.

Microsoft said the major increase in Exchange licenses is a result of companies completing lengthy trials and finally moving ahead on rolling out the software.

Few doubted that Exchange would be a hit. But some analysts were disappointed when it garnered only about 2 million users by the end of last year.

The reason was that large companies were preparing their networks for Exchange, said Les Brown, a systems analyst at Shell Services Co. in Houston. Besides spending a lot of time upgrading client and server hardware, many companies also faced an operating system move to Windows NT, he said.

Shell, which was included in the Exchange Early Adopter Program and had access to prerelease versions of Exchange, will have migrated 95% of its 17,000 U.S. users to Exchange by early next year, Brown said.

"Migrating an E-mail system is always painful," said an information systems manager at another oil company that is moving to Exchange.

His firm has moved 100 of its 6,000 users to Exchange so far. "Why is it taking so long to migrate? Because we really tried to avoid a migration but were forced to when our old E-mail system wouldn't let us do what we needed," said the manager, who requested anonymity. □

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TEXAS INSTRUMENTS**

# Money is focus at 'net show

▸ *Push technology is seen as falling off the radar at Internet World '97*

*By Sharon Machlis*

MONEY, MONEY, MONEY.

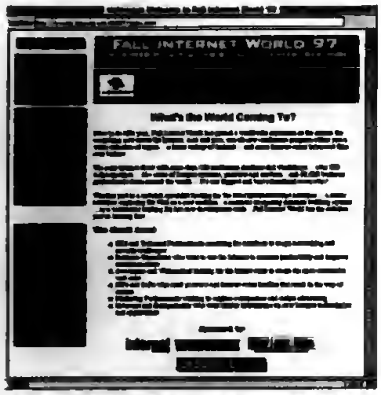
That will definitely be the hot topic next week at Internet World '97, said Jack Powers, vice president of conferences for event sponsor Mecklermedia.

Internet finance sessions have attracted the most visitors to the trade show's World Wide Web site (*http://events.internet.com/fall97/index.html*), and a two-day electronic-commerce symposium is expected to be full. "This really is a money show," Powers said.

About 60,000 people will flock to New York's Jacob Javits Convention Center next week for what organizers said is their biggest Internet-focused event yet.

Expo registration for Internet World has jumped by a third from a year ago.

Falling off many radar scopes this year will be "push" technology, last year's big trend, said Jeffrey Nickerson, director of national Internet practices at Coopers & Lybrand LLP. "It's still an issue, but seems to have dissipated somewhat," he said. Even so, there will be a daylong Push Technology Summit at the show.




**Finance sessions have drawn the most hits on the Internet World Web site**

Showgoers can expect pitches from the increasingly competitive electronic-commerce arena, which will address issues such as order and payment processing, content management and user tracking.

There will be a host of new products that focus on specific electronic-commerce issues, but information technology executives who are seeking one-stop shopping are likely to be disappointed, said Chris Stevens, an analyst at Aberdeen Group, Inc. in Boston.

Some vendors are touting soup-to-nuts electronic-commerce offerings for large companies, Stevens said, but users say they still must assemble their own electronic-commerce systems among best-of-breed products. "It's a surprisingly fragmented market," he said.

### STANDARDS GALORE

Show attendees will be able to receive updates about Internet standards in the works, such as Extensible Markup Language (XML). XML was designed to better structure some data posted on the Web so it can be handled more like a database than plain text.

Representatives from **Microsoft Corp., Netscape Communications Corp. and Sun Microsystems, Inc.** are slated to speak at the Dec. 9 XML panel.

**GTE Internetworking** in Stamford, Conn., (formerly BBN Corp.) will announce improvements in its managed security offering, Site Patrol. And **AT&T WorldNet** in Basking Ridge, N.J., the largest direct Internet service provider, will disclose new security benefits for business customers who set up electronic-commerce programs.

**MCI Communications Corp.** in Washington will make two announcements of importance to Internet MCI business users, including security enhancements, a spokeswoman said.

Also expected at the show are the following:

- **Hewlett-Packard Co.** and **Cisco Systems, Inc.** will announce a joint security offering.
- Products to create richer Web content will be on display. They include a three-dimensional advertising tool from **Live Picture, Inc.**, the latest venture of former Apple Computer, Inc. CEO John Sculley, and dynamic Hypertext Markup Language software from **Astound, Inc.** in Palo Alto, Calif. □

*Staff writer Matt Hamblen contributed to this report.*

**Review: Trellix helps build hyperlinked documents, text searches. Page 45**

# Load balancers aid access

CONTINUED FROM COVER 1

dollars. Interest in the technology is driven by the proliferation of Web servers and mounting frustration over access time.

"If we didn't have the software, I'd be buried," said Steve Plastrik, vice president of technical operations at Viacom, Inc. in New York. "I'd have to get another job."

### HOW THEY WORK

A load balancer takes calls sent to a World Wide Web site that is busy or down and automatically redirects them to an available online server. It also balances server loads to boost performance and prevent any one server from being overtaxed. That lets users delay or avoid buying more servers as hit counts rise. Servers for heavy-duty Web work typically cost tens of thousands of dollars.

Another benefit of load balancing is the ability to take down one or more servers for maintenance or to fix problems without shutting out users.

Suppliers of load-balancing products include Cisco Systems, Inc., IBM and start-ups Resonate, Inc., Bright Tiger Technologies and Atreve Software.

"Load balancers promise to reshape the way corporations and consumers use the Web by sending [accessibility] skyward," said Daniel Briere, an analyst at TeleChoice, Inc., a Verona, N.J., consultancy. "Imagine accessing a popular Web site with no busy signals. That's pretty heady stuff."

Life before load balancers wasn't pretty, Sheryl Olguin said.

"If you had 1,000 documents on a server and it was becoming overwhelmed, you manually took 500 and moved them to a second machine," said Olguin, network manager at Harris Corp. in Melbourne, Fla. "If something went wrong, all you knew was that the server was overloaded. You didn't know what was actually wrong."

But before they can reap the rewards, IS managers will have to train their staffs to use the accompanying management system. And some load balancers require users to replicate the content of every server on every other server and synchronize them, which devours resources.

Users said they are more than willing to invest the time. Plastrik said he has used Cisco's Local Director load-balancing software to run 18 cable television-related Web sites.

Viacom sponsored the Showtime Web site for the Tyson/Holyfield fight last June. Web visitors could register their votes on how each round went. The day of the fight, there were 1.5 million hits. That figure jumped to 15 million hits the next day when people came to the site for news about whether Mike Tyson would be suspended for biting Evander Holyfield's ear.

There weren't any disruptions either day.

### GLOBAL USES

In the past two years, Plastrik said, he has seen his number of servers triple from three to nine, but the traffic rate has increased tenfold, he said. "[The software] is the difference between our success and not," he said.

"We've never maxed out our servers. And we've had more than 500 connections per machines, which means 4,500 simultaneous connections with users," Plastrik said.

Andersen plans to launch a global Web site project where the servers contain internal Andersen applications, such as financial applications.

"The beauty of using load balancers is that we don't have to bring everyone to Chicago to see these applications," Nottke said. He can route users to the closest server rather than waste wide-area network dollars by connecting them to the Chicago server.

**Andersen Worldwide's Dan Nottke says load balancers "let you offer the bulletproof Web site"**

NationsBank Corp. in Charlotte, N.C., uses a load-balancing system to handle a four-Web server intranet accessed by 85,000 employees. The intranet contains information about home mortgages, equity credit lines and PC banking, said Doug Starkey, vice president of strategy at the bank.

"We can use load balancers to make sure that no one server gets overwhelmed, which helps us make most efficient use of the servers we have," Starkey said. □

**Emerging tools can allocate Internet, intranet bandwidth, Page 51**

HEWLETT® PACKARD

**Which one can you do without?**

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# Netscape buys Kiva to bolster enterprise bid

*By Carol Sliwa*

NETSCAPE Communications Corp.'s acquisition of an application server company last week should give it an edge in its battle with Microsoft Corp. for the enterprise market space, industry observers said.

The Mountain View, Calif., software maker plans to acquire Kiva Software, Inc. for $180 million in stock to bolster its server software offerings for running highly scalable World Wide Web-based applications.

"The combination of Netscape and Kiva gives Netscape a more scalable and highly available solution for Internet applications than Microsoft can offer at the moment, even with [its] Wolfpack [clustering technology]," said Michael Goulde, an analyst at Patricia Seybold Group in Boston.

Kiva, also in Mountain View, makes application server software needed by companies that build serious online applications for their Internet, intranet or extranet sites that can reliably handle a flood of hits.

"A Netscape/Kiva combination is so natural and so logical; in my estimation, it puts them 18 months ahead of the best competitor, which is Microsoft," said Ed Videki, chief scientist at Net Contents, Inc., which hosts and engineers the Virtual Vineyards Web site.

A Netscape/Kiva customer, Videki's company earlier this year extensively tested several products in the application server space, including Microsoft's.

**HEAD START**

"The Microsoft solution to these problems is a set of existing products, somewhat souped-up, but bound together by Scotch tape and a string," Videki said. "Microsoft is moving in the right direction; the Netscape/Kiva combination is already there."

Companies that build Web applications typically start with a three-tier model in mind: Web browser client, Web server and back-end database.

While a Web server may work for low-end departmental or workgroup applications, it was proving inadequate for companies building high-volume, business-critical applications.

Netscape, in fact, had recommended third-party products such as Kiva's application server to customers.

"In terms of what they have now, Netscape is way ahead [of Microsoft]," said Ezra Gottheil, an analyst at Hurwitz Group, Inc. in Framingham, Mass. "They have a broader range of server products, they're cross-platform, and in some notable cases, they're considerably more cost-effective."

The application server, which sits behind the Web server, lets a developer partition the business logic of an application.

Having a program's business logic concentrated on the application server makes it easier for companies to modify that application.

Products in this category also were designed to help applications run more reliably, managing the exchange of data between client and back end.

Kiva's application server costs $35,000 per processor on Unix and $25,000 per processor on Windows NT. □

**KIVA SOFTWARE**

**Founded:** April 1995

**Employees:** 100

**Key product:** Application server software

**Key customers:** Ameritech, Bank of America, Hongkong Telecom, Pacific Bell Internet

# Pushing for Java support

▸ *Netscape holds back on Java compliance, irks corporate browser users*

*By Carol Sliwa*

WHEN NETSCAPE voluntarily pulled the Java Compatible logo from its Communicator 4.04 client last month because it wasn't fully compliant with the latest Java specifications, it wasn't exactly the message some users were hoping for.

Eli Lilly and Co., for example, has held off deploying the new Netscape Communications Corp. browser, in part because it would like to get a Java-compliant browser on end users' desktops so Java applications will run properly, said John Swartzendruber, a senior information consultant at the Indianapolis-based drug company.

Desktops could be updated through a patch, but the company would prefer to do the installation all at once, Swartzendruber said.

"We view Java as an important issue, and not being Java-compliant would be of some concern [moving forward]," Swartzendruber said.

**LOOKING TO PLUG IN**

Sandia National Laboratories in Albuquerque, N.M., hasn't upgraded to the new Netscape client because it hasn't seen a pressing need. But that will change come February, when Sandia does its next major software installation.

Browsers will be upgraded for the sake of Java Development Kit 1.1 (JDK), and if they aren't compliant, that could present problems when running Java applications, according to David Leong, a World Wide Web systems integrator at Sandia.

"Hopefully, by February, they'll have a module that we can plug in," Leong said.

Since its June release date, Netscape's latest browser has not fully complied with the JDK 1.1 specification, which came out in February (see chart).

"It's taken a while to get it on the various platforms and to do the work to put it into the Web browser," explained Debby Meredith, senior vice president of Netscape's strategic technologies and products group. "It's not easy, but we're committed to it, and it's going well," she said.

Preview release patches are now available for Windows 95 and NT and the major Unix platforms. Final versions are expected by year's end, according to Netscape group product manager Mark Thomas.

But, even then, Netscape won't be 100% JDK-compliant and probably won't be able to restore the Java logo to Communicator at that time, Thomas admitted.

Netscape is actively working with Sun Microsystems, Inc.'s JavaSoft division on security incompatibilities, he said.

**LIMITED COMMITMENT**

Netscape has committed to full JDK support in Communicator 5.0, but the company has made no such commitment for Communicator 4.x.

"In 4.0, we are extremely close to fully compliant, and I think we're 99.9% of the way there for the issues that developers and customers care about," Meredith said.

But Sandia, for one, figures it may have to test applications to make sure they work with the browser.

"As long as [Netscape's browser] is JDK 1.1-compliant enough so our application runs, we'll be happy," Leong said. "But, it'd be nice if everyone followed the same standards and you didn't have to worry about that type of testing."

Other companies aren't quite so concerned.

"I think it's an issue," said Louis Dumser, manager of communication application technologies at UniHealth in Burbank, Calif. "We've watched [Netscape's] development, and they've been standards-based all along. I have full faith that they will be compliant." □

**If you use Java Development Kit 1.1 . . .**

**Netscape Communicator lacks support for:**

- Abstract Window Toolkit 1.1
- JavaBeans components*
- Java Native Interface*
- Print support for applets*
- Java security model*

*Support due by year's end; preview release patch available now.

**Microsoft's Internet Explorer lacks support for:**

- Remote Method Invocation
- Java Native Interface

# HP opens R/3 data warehouse doors to non-Oracle users

*By Craig Stedman*

HEWLETT-PACKARD CO. is relaxing the grip of Oracle Corp.'s databases on a data warehousing bundle detailed earlier this year for SAP R/3 users.

HP this week plans to announce a revamped package that lets users of SAP AG's client/server applications store customer records and other data in non-Oracle databases.

The suite, renamed HP Mart for SAP R/3, also includes a set of prebuilt templates for sucking data out of R/3.

Getting SAP data in shape for analysis and decision-support uses is becoming a Holy Grail-like quest for many R/3 customers, said Henry Morris, an analyst at International Data Corp. in Framingham, Mass.

But for most users, warehousing R/3 data has typically required heavy-duty custom coding with SAP's proprietary procedural language, he added.

**OTHER OPTIONS**

HP's revised bundle still uses Oracle as the default database, but users who rely on other databases can now swap in those products instead.

Palo Alto, Calif.-based HP said it also is replacing an Oracle-built tool kit for pulling data out of R/3 with less proprietary third-party software that supports multiple databases.

The new software tool, developed by a German software vendor, also provides for storing and updating data extraction models.

The R/3 bundle also includes hardware, data-mart management software and consulting services from HP. It features front-end analysis tools from Cognos, Inc. in Ottawa.

Average pricing for implementation of a 50G-byte data mart over 90 days is $400,000.

But R/3 hangers-on such as HP will soon face warehousing competition from Germany-based SAP, which next year plans to ship its own R/3-specific data warehouse software.

"That would probably be the first thing we'd look at" for warehousing R/3 data, said Robert Rubin, chief information officer at Elf Atochem North America, Inc., a chemicals maker in Philadelphia. "I'd expect the integration with R/3 to be tighter with SAP's own product." □

# Enterprise rollouts trip over hidden costs

CONTINUED FROM COVER 1

agers are careful.

Software acquisition will be less than 20% of the total cost of ownership and may even run as low as 5% if rollouts are difficult and drawn out, according to research by Gartner Group, Inc. in Stamford, Conn.

"A $1 million investment can cost between $5 million and $20 million over the life of the application," said Gartner analyst Ray Paquet.

He said some enterprise tool kits are so complicated, users can wind up losers. They must budget for extensive consulting, project management and installation services, training, integration of existing tools and maintenance chores such as writing scripts and policies.

Several information systems managers attempting to implement enterprise-scale tools said they are aware of the problem and are taking steps to avert failure.

ERIC MILLETTE

**J. P. Morgan's Bill Oris: The company will carefully roll out Unicenter TNG "so there is no ongoing, unknown cost bucket"**

"I definitely think implementation costs can run three to four times the price of the software," said Dennis Mitchell, systems vice president of the Capital Markets division at BankAmerica Corp. in San Francisco.

Mitchell uses Unicenter TNG (The Next Generation) from Computer Associates International, Inc. to predict performance problems on the bank's trading floor by unifying management views.

"We went into this with our eyes wide open, following our experience doing the same thing with SNA network and mainframes," Mitchell said.

Eastman Kodak Co., wants "data center-quality" control over critical applications that run across systems and networks worldwide. To do this, it will use Tivoli Management Environment (TME 10) from Tivoli Systems, Inc. in Austin, Texas, said David DeMarco, a technical associate at Kodak in Rochester, N.Y.

Kodak's huge project required a business process re-engineering approach with ample initial help from Tivoli Professional Services, DeMarco said. A set of guidelines, called the Tivoli Implementation Methodology, helped control the cost and rollout of tools, he said.

TME 10 is "a consultant's dream," said Don Whitfield, a vice president at NationsBank Corp. in Charlotte, N.C. Careful, step-by-step planning is required to keep implementation on schedule and within budget, he said.

IS managers at J. P. Morgan & Co. also are carefully planning their rollout of Unicenter TNG based on past experience with complicated management software.

"We had to factor in all aspects of implementation up front, so there's no ongoing, unknown cost bucket," said Bill Oris, a vice president at J. P. Morgan in New York.

Ken Shaurette, information security systems staff adviser at American Family Insurance Group in Madison, Wis., said he expects costs to decrease with Unicenter TNG. Making an integrated management suite work is expensive, but Shaurette expects costs to decrease "because we'll have more efficiency and fewer vendors to deal with," he said. □

December 8
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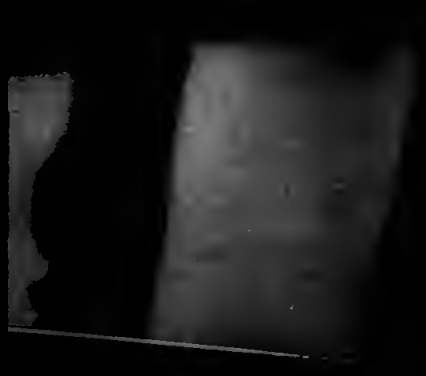

# Data warehouse software targets net management

*By Patrick Dryden*

USERS AWAITING Cabletron Systems, Inc.'s data warehouse for network management said they have one all-important goal: to extract business-relevant information from a glut of statistics.

Cabletron and partners recently outlined plans to provide the first SQL-based management repository that correlates diverse data about networks, servers and applications. It will ship next quarter.

With an open repository in place, users would be able to apply data mining tools to answer tough questions about performance, usage and growth of client/server environments. "We've gotten good at reacting to faults. Now we want to move to the next level — fixing problems before users sense them and predicting usage trends," said Dennis Mitchell, a systems vice president at the Capital Markets division of BankAmerica Corp. in San Francisco.

The upcoming Spectrum Data Warehouse promises valuable ways to examine historical data, Mitchell said. For example, he hopes to detect intermittent cabling faults that users may not report, thereby preventing major disruptions on the bank's trading floor.

**BankAmerica hopes Cabletron's Spectrum Data Warehouse will help prevent disruptions on the bank's trading floor**

The increasing complexity and volume of data demands such sophisticated software to manage big networks, said Mark Bouchard, an analyst at Meta Group, Inc. in Westport, Conn.

"Cabletron is starting off on the right foot with standard database support and definite applications to sit on top of the warehouse," he said.

Initially, the data warehouse will be able to pull information from Cabletron's Spectrum network manager and its Patrol system; application managers from BMC Software, Inc. in Houston; and NetScout network monitors from NetScout Systems, Inc. in Chelmsford, Mass.

Cabletron will offer a suite of applications to analyze gathered data, and partners will add reporting and data mining tools throughout the year. The partners include Concord Communications, Inc. in Marlboro, Mass., and Optimal Networks Corp. in Palo Alto, Calif.

Somewhat similar tools for gathering network data and tracking performance are available from vendors such as InfoVista Corp. in Redwood City, Calif., and SAS Institute, Inc. in Cary, N.C. They don't reach out as broadly to cover all management disciplines, Bouchard said.

Reaching such ambitious goals will depend on Cabletron's ability to deliver promised applications and to gather data from many more sources, Bouchard warned.

One user said Cabletron's promised first-phase support "will give me what I want." James Wiedel, director of networking at the University of Southern California in Los Angeles, said he needs to convert Spectrum network statistics from about 13,500 users to usage profiles for chargeback purposes. □

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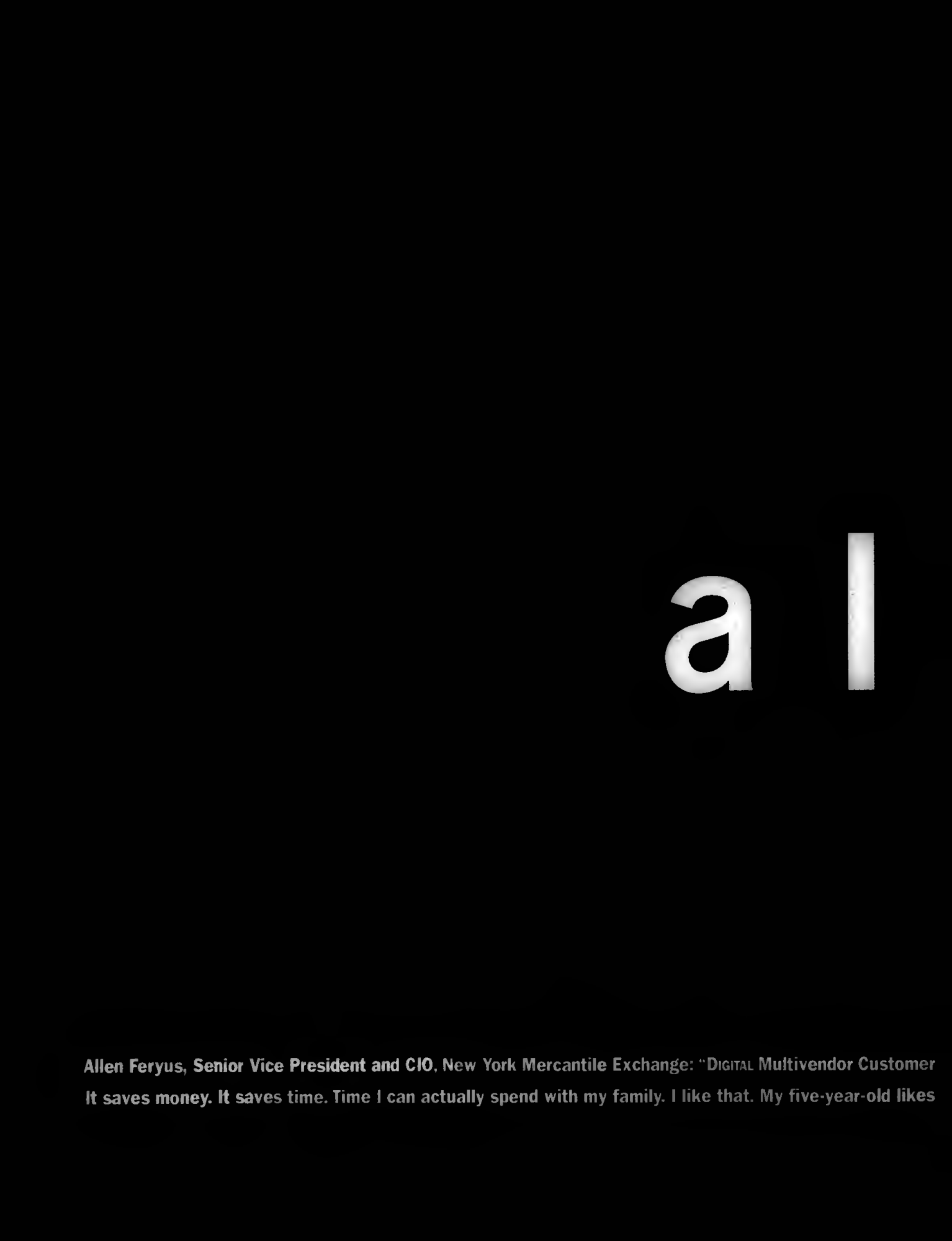


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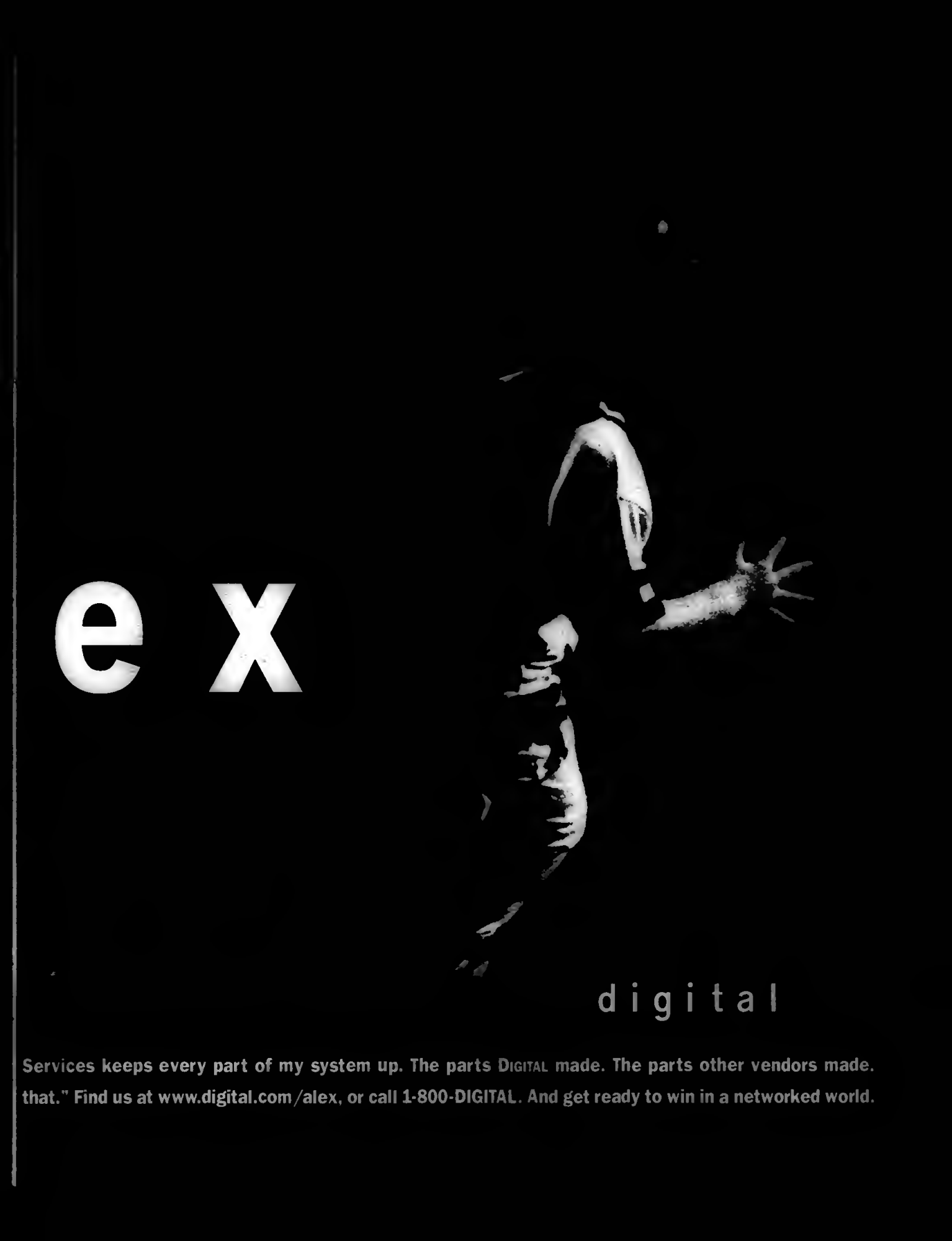
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# Legacy switches gain new lease on life

*By Bob Wallace*

3COM CORP has developed technology that gives its older LAN switches a much faster connection to its latest Gigabit Ethernet switches, thus preserving user investments in legacy switches a while longer.

The switching protocol will enable the thousands of installed LANplex 6000 switches to create eight times fatter pipes to connect to data center switches such as the recently announced CoreBuilder 9000 and 3500.

That 800M bit/sec. communications path eliminates bandwidth bottlenecks and eases the migration to Gigabit Ethernet. Today, LANplex users can establish only a 100M bit/sec. pipe to the CoreBuilder 9000 and 3500.

The 3Com protocol lets the LANplex 6000 bond two, four or eight 100M bit/sec. Fast Ethernet channels into a single high-speed pipe.

A prime example of the user problem is at SAS Institute, Inc. in Cary, N.C., which wants to move to the Gigabit Ethernet model of the CoreBuilder 9000 for more bandwidth because its backbone network is nearly full.

"But we can't make that move without tying in our 25 LANplex 6000 LAN switches [because] they're the bulk of our network," said Steve Toy, assistant network systems engineer at SAS Institute.

"Coming up with this trunking plan extends the life of the 6000s and buys us time on network expansion," Toy said. SAS Institute spent $1 million on the older boxes.

3Com developed the scheme, called Trunking Control Messaging Protocol, to help users protect their investment in LANplex 6000 switches, which debuted in 1994, said Brendon Howe, 3Com's product line manager for switching systems.

The protocol will be available with 3Com's next switch software release, Version 8.4, in the first quarter of next year, Howe said. It also lets users tie LANplex 6000s to the recently announced CoreBuilder 3500. □

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# Unicenter TNG gets hooks to PCs

*By Patrick Dryden*

COMPUTER ASSOCIATES International, Inc. recently extended the reach of its enterprise management suite directly to PC systems, as promised.

A free upgrade to CA's Unicenter TNG tools now lets central operators take advantage of management capabilities built in to new laptops, desktops, NetPCs and servers.

"They always talked about direct management at the client level, now they're doing it," said Colin Mahony, an analyst at The Yankee Group in Boston.

Vendors that demonstrated remote management functions via Unicenter TNG during Comdex/Fall '97 included Compaq Computer Corp., Dell Computer Corp., Hewlett-Packard Co. and Intel Corp.

The goal is to slash the cost and hassle of deploying lots of PCs throughout big organizations. Raw systems shipped to departments and branch offices could be awakened and configured across the network so that software can be distributed to them automatically, for example.

The Unicenter TNG enhancement should help ease a "massive upgrade" to Windows NT, said Bill Orris, a vice president at J. P. Morgan & Co. in New York. "It's good news that CA is delivering desktop management that users requested," he said.

However, analysts caution that older PCs lack the latest firmware and network interfaces required to simplify remote management. □

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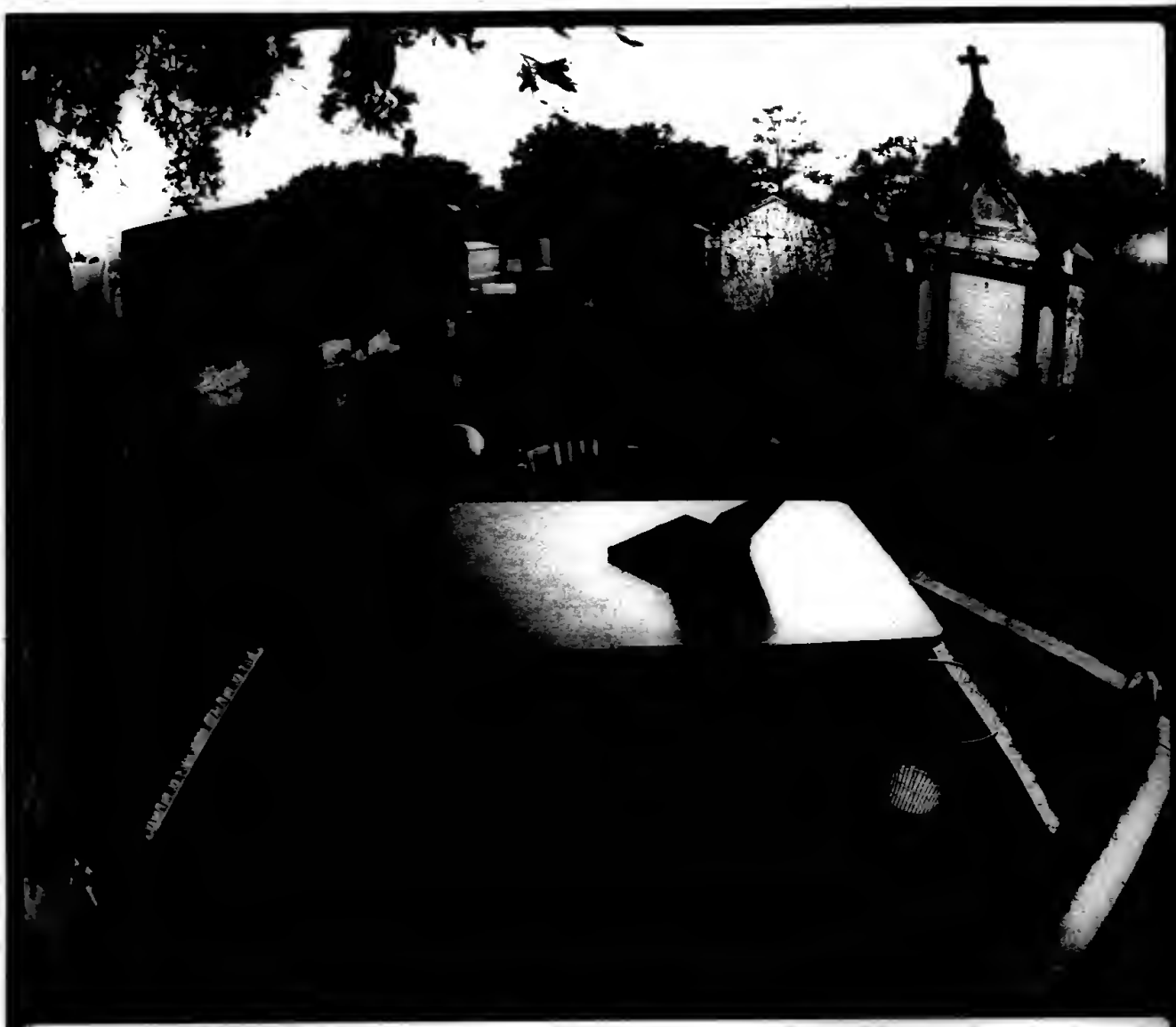

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# Data mining yields tons of spurious findings

CONTINUED FROM COVER 1

Such are the perils of data mining. The tools, which search databases for hard-to-detect patterns and relationships, can unearth precious nuggets of information that pay huge financial and competitive dividends.

But more than 15 users and analysts said data mining tools also can spit out spurious, statistically invalid and trivial findings — by the thousands.

Companies have to handle the tools with care, laboriously cleaning and prepping data and then tediously checking the results to make sure they aren't just random dirt.

"The norm is that you find things that are bizarre, and 99.9% of the time, they're also untrue," said Mike Eichorst, vice president of predictive modeling and data mining at The Chase Manhattan Bank Corp.'s Consumer Credit unit in New York. "You can go down a lot of blind alleys."

Turning a mining tool loose in a large data set might produce more than 2,000 findings, all but 20 of them obvious, irrelevant or flawed, Eichorst said. "One tool told us income is higher for people who have big balances. Well, yippee," he said.

### TOO RANDOM

A tool also might claim that doctors who buy red Porsches are bad credit risks or that male smokers who live in certain neighborhoods are bound to be profitable customers. But that might be based on only a few random examples, Eichorst said. "There are no built-in checks and balances."

David Leinweber, managing director at First Quadrant LP in Pasadena, Calif., has seen results that tied the performance of stocks to their serial numbers

and correlated venereal disease rates to air pollution levels.

"You can torture the data until it tells you whatever you want to hear," said Leinweber, whose firm manages $25 billion worth of investments for institutional customers. "Data mining used to be something you did at your peril, and now it's a product."

Those pitfalls haven't stopped Chase Manhattan from betting big on data mining. The Consumer Credit unit, which does business with more than 25 million U.S. households, uses a variety of automated tools to probe customer buying habits, credit risks and other strategic issues.

Some of the results have been well worth the effort, Eichorst said. For example, the bank found a big group of customers who had low balances and used non-Chase automated teller machines (ATM) multiple times per day. That led to a fee adjustment so more-profitable customers weren't footing too much of the ATM bill.

**"There's a huge human element that is important, and in many ways, these tools increase the quality of the people you need."**
**– Mary Kelley, Charles Schwab & Co.**

But to keep data mining from going astray, Chase makes sure its business units have a big role in the process. Eichorst worked in the marketing and credit-risk departments before setting up the data mining lab, and teams of database marketers and business analysts pose specific questions so the tools "don't just run rampant," he said.

The competitive implications of data mining make it hard for users to ignore the technology. Gartner Group, Inc. in Stamford, Conn., estimates that more than 20% of Fortune 1,000 companies now use automated mining tools. By 2000, that figure is expected to jump to 45%, according to the consultancy.

But other experienced users sound the same warning as Eichorst: Getting useful results out of data mining tools requires detailed knowledge of your data and long rounds of trial-and-error questioning.

"There was a huge learning curve," said Chuck Hendriks, director of market planning and programs at Bell Canada, Inc. in Montreal. "There were some times where we got information out and it just didn't make sense."

Bell Canada has used IBM's Intelligent Miner and other data mining tools for the past year to segment its commercial customers for targeted marketing.

Another problem was finding people with the requisite mix of business and statistical analysis skills, Hendriks said.

"There's a huge human element that is important, and in many ways, these tools increase the quality of the people you need," said Mary Kelley, vice president of database and relationship marketing at Charles Schwab & Co. in San Francisco. But business-savvy data miners and database marketers are few and far between, she added.

Successful mining also demands squeaky clean and slavishly prepped data. Scrubbing customer records, chopping them into workable but statistically valid samples and then testing and refining everything can chew up 80% or more of the data mining process, users and analysts said.

Mistakes can be dangerous.

Chase got a faulty reading on the average balance of some credit-card customers because data had been posted incorrectly. And bad file sorting caused a data mining tool to tell Epsilon, a contract database marketing firm in Burlington, Mass., that the best predictors of interest in a client's upcoming marketing campaign were customer ID numbers — a finding that made no sense whatsoever.

> One data mining exercise found a strong historical correlation between the rise and fall of the Standard & Poor's 500 stock index and butter production in Bangladesh

At his former job, Suomu was about to run an algorithm when he found a data-entry error that would have fed the mining tool wrong information about each customer being analyzed.

"I didn't realize how significant [good data] was until I'd been through the wringer," he said. "You can't take any shortcuts."

It doesn't help that most of the more than 50 data mining tools being sold now are still in the whippersnapper stage.

The data mining market totaled $3.4 billion last year and should grow to $4.2 billion this year, according to a report from Meta Group, Inc. in Stamford, Conn. But tools make up only 15% of that, according to the consulting firm. Most of the money goes to service bureaus and integrators hired to shield users from all the complexity.

The need for outside help and powerful hardware can push the cost of data mining installations to $a million or more, said Herb Edelstein, an analyst at Two Crows Corp. in Potomac, Md. For that kind of money, vendors often sell the idea that data mining coughs up deep thoughts that lead to instant business breakthroughs, "but it doesn't work like that at all," he said.

It takes time to make the technology work for you. Schwab runs 100-plus data mining questions on its brokerage customers each month, Kelley said. Much of her staff's time is devoted to up-front data analysis and correcting the predictive models the tools produce.

"These things don't do too well on emotions, and a lot of marketing is related to emotions," Kelley said.

"Sometimes you have to take a deep breath and say, 'We better validate this one more time,' " she said. □

Computer Industry

# Q & A:

*Roger Nelson, deputy chairman of Ernst & Young LLP, recently spoke with Computerworld senior editor Jaikumar Vijayan about mergers, outsourcing and what it takes to stay in front.*

**CW: What is driving the recent consolidations among the Big Six consulting firms?**

**NELSON:** It is about scale, investment and coverage on a worldwide basis. It is about being able to take on global systems integration work for the largest companies in the world. That means having breadth and depth ... and the revenues to be able to afford the kind of investments needed to get in front and stay in front.

Roger Nelson

**CW: Why are these investments needed?**

**NELSON:** You have to invest this money in having more efficient models in doing the same amount of work with less. If you look at the huge demand for SAP and other enterprise resource planning applications, year 2000 or euro currency work, and put that on top of major business transformation projects already under way, there is an enormous amount of work to be done.

**CW: What does the proposed merger with KPMG Peat Marwick LLP buy you?**

**NELSON:** The important point here is that the two organizations are both culturally and strategically in alignment.

The combined resources will allow us to deliver much more effectively as a global integrator.

**CW: How will the merger affect users?**

**NELSON:** The customer is going to benefit from having standardized business models, tools and technology ... and from having more depth and breadth in coverage ... and from having access to more local resources and technical skills. □

# Choices narrow in Web-to-host arena

▸ *Users expected to see fewer, larger vendors*

*By Tim Ouellette*

THERE ARE A number of ways for users to access legacy applications from the World Wide Web, but there will be fewer vendors helping.

For example, Apertus Technologies, Inc. recently bailed out of the market it just entered earlier this year. The Eden Prairie, Minn., firm sold its Internet Solutions division to Computer Network Technology Corp. (CNT) in Minneapolis for $11.4 million.

Apertus officials said the company wanted to focus solely on its data warehousing products, though that has been a smaller part of its business.

**"We think you have to come to this market as a bigger, stronger company."**
**– Mark Anittel, Computer Network Technology**

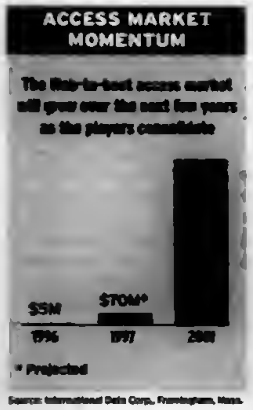
Observers said that is just the start of a shakeout that will result in fewer strong players providing a wide range of access methods to legacy applications.

"There will be a lot of money in this market, but not a lot of players," said Ted Schadler, an analyst at Forrester Research, Inc. in Cambridge, Mass. (see chart).

That is because only companies that can provide a reliable way to merge multiple back-end systems and present a single face to users on the Web will survive the cut.

For CNT, which already plays in the Web-to-host market, the Apertus purchase gives it the ammunition to play with market heavyweights such as IBM and Attachmate Corp. in Bellevue, Wash.

"We think you have to come to this market as a bigger, stronger company," said Mark Anittel, vice president of marketing and business development at CNT.




Another smaller firm, UniKix Technologies, is doing this by giving away its Web Client for CICS transactions.

"The free software gives users the confidence that we are safe to do business with," said David Matthews, vice president of marketing at the Phoenix firm.

Users will be able to download the third version of Web Client from the company's Web site by year's end.

That means the client side of the business — green screens inside Web browsers and terminal emulators — will turn into a commodity as technologies such as network computers and Java enter the picture.

Instead, look for Web-based application servers in between clients and legacy systems to play a more important role than traditional terminal emulators, Schadler said.

For example, this month, CNT plans to debut Cool, a server package that will turn mainframe 3270 data streams into Java output that can be read by any Java browser.

"If you can book a flight to Paris on the Internet easier than getting last month's sales report [from the mainframe], people will start asking questions of IS," said Doug Strom, a vice president at Attachmate. □

# Vendors add sales tools to enterprise packages

▸ *Modules give sales force more information*

*By Randy Weston*

SALES FORCE automation is coming to an enterprise resource planning (ERP) system near you.

Major ERP vendors, led by SAP AG and Oracle Corp., are expanding their application packages to include sales force automation software (see chart).

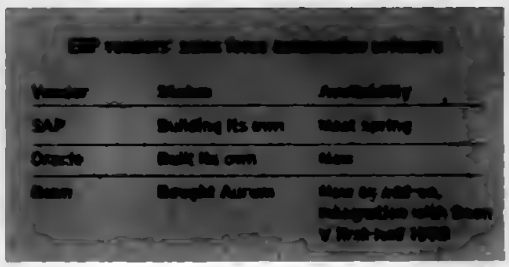
Besides managing sales calls and customer accounts, the software lets salespeople access data about factory production schedules and inventory levels to give customers on-the-spot information about product availability and delivery times.

"Vendors really want to deliver as much to the customer that supports the customer," said Joshua Greenbaum, an analyst at Hurwitz Group, Inc. in Framingham, Mass. "The big issue of the '90s is customer ownership. Sales force automation is a strategic piece of that issue."

Oracle is the latest to market with a module that supports sales and marketing teams. The functionality included in the package includes sales lead management software, sales quote tools and integrated order entry information.

**THIRD-PARTY FIRST?**

But Meta Group, Inc., a research firm in Stamford, Conn., said users looking for in-depth functionality may want to go with third-party products from vendors such as Vantive Corp. in Santa Clara, Calif., or Scopus Technology, Inc. in Emeryville, Calif., until the application vendors bring their products up to speed.




One exception may be The Baan Co. The Dutch vendor with U.S. headquarters in Menlo Park, Calif., last spring bought established sales force automation vendor Aurum Software, Inc. in Santa Clara.

But Baan is still working to integrate Aurum into its core application package of financials and manufacturing planning software. Greenbaum said that for any third-party package, integration is a key factor.

"Customers should really look at how tight integration is and at what cost they get that integration," Greenbaum said. "It's not just a question of taking the vendor's word for it. They will want to see how well it works."

But for some users, a sales force tool from an ERP vendor is an easy choice. Crown Equipment Corp. in New Bremen, Ohio, evaluated seven sales force software packages when Baan, its ERP vendor, bought Aurum.

Mark Manuel, general manager of information services at the forklift maker, said Baan's announcement solidified his company's decision of which package to use — Aurum.

"For those seven choices, functionality differences were negligible," Manuel said. □

RY WEDNESD

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OPINION

**Office romance** My, my, these are highly emotional days in the PC industry. Witness the spectacle of Microsoft Chairman Bill Gates and Compaq CEO Eckhard Pfeiffer declaring their love for the PC and urging us all to remain faithful. Borrowing a page from the Macintosh community, are we, fellas?

Seems as if the network computer phenomenon has the PC faithful so spun up that they're exhorting us to develop deep and meaningful relationships with our office equipment. In that spirit, let me shower some inappropriate affection beyond the desktop.

For starters, I love my telephone headset. It's just

so easy to use and adjustable and such a chic blend of black and gray! I can plunk it on without messing up my hair, and it frees up my hands to surf the Web while I pretend to listen to callers.

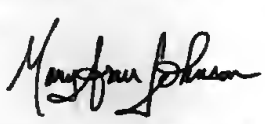
I love my stapler, too. It's got those wonderfully sharp little metal teeth, so perfect for piercing paper. It's just so superior to those dorky little paper clips, which are always falling off.

I love my desktop printer, as well, even though it sometimes spews out pages covered with encoded Martian characters instead of English.

Did I mention my fax machine? Gotta love that thing. I share it with dozens of other people in Computerworld's editorial department, so I especially love the fact that it isn't anywhere near my office. It's even more endearing when it's broken down, because then the faxes don't arrive at all.

I love my cell phone, too, although it works only sporadically. Oh, and you do need programming experience to figure out how to input and store speed-dial numbers.

Considering all of the above, I guess so office affair with my PC makes perfect sense. Here I thought Microsoft and Compaq would be selling me on the business benefits of PCs vs. NCs. Turns out it's an emotional issue, just like loving your insanely great Mac. Corporate America is going to love this pitch, isn't it?



**Maryfran Johnson**, *Executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

## Users don't see eye to eye on NT Server

YOUR PAGE ONE article "NT Server doesn't come cheap" [CW, Oct. 20] included a couple of quotes that I must disagree with. My personal experience has been just the opposite.

The first quote was Evan Bauer's claim that NT was so unstable that it must be rebooted once or twice per week. Where I work, it is the Unix servers that must be manually rebooted every week to reclaim memory leaks. The NetWare servers aren't taken down manually; they crash automatically whenever Cheyenne's ArcServe backup software hiccups or is unloaded. The NT Servers have been very stable.

The second quote was Matt Rice from Trust Bank saying, "I have 200 users attached to a single 466-MHz server running NetWare, and we have no problems. No way could I do that with NT." As far as I know, NetWare can't run on a server as fast as 466 MHz, although NT can. I administer an NT Server with 700 accounts (450 concurrent) and 100G bytes of disk.

*Lincoln F. Brigham Jr.*
*Windows NT administrator*
*Mitchell International*
*San Diego*
*lincolnb@ix.netcom.com*

BRAVO! AN excellent article regarding the true cost of the Windows NT operating system. The article, along with the accompanying box on the actual hit on the network NT systems make, shows how the cost of an NT-based network is just too much. Too many resources, too much equipment, too many administrators — and not enough performance. This is what those of us on the front lines who have to make this technology work have been saying for a while now. It is nice to see that the media is finally starting to report in an unbiased manner regarding Microsoft and its products.

> NT requires too many resources too much equipment and too many administrators

*Stewart Taylor*
*North County Bank*
*Escondido, Calif.*
*stewart@northcountybank.com*

GREAT JOB ON the NT Server article! I'm glad to see that someone is finally telling the truth about NT instead of hiding faults and making false promises. I tried Windows NT and found Windows 95 to be a more polished product. That is bad, considering that Windows 95 is intended as the stepping stone to NT. It's like trading in your Chevette for a Pinto.

NT does have some good points, but it is much too bloated for many applications. Text-based operating systems are more efficient with resources than fancy graphical ones. The desktop icons, window positioning pointers and fonts all add up after a while. Graphical interfaces are best suited for workstations instead of servers.

*Ricky Hardt*
*Houston*

## Well-balanced SAP report

IN COMPUTERWORLD'S article about SAP in the Nov. 10 issue ["From SAP to nuts"], you nailed several important points and touched on others. One nice thing about it was the intelligent balance, as contrasted with what I too often see, which is an effort to prove a dramatic point. The result was a resource for understanding the SAP phenomenon.

*John E. Mann*
*Somerville, Mass.*

## FYI, IS's LLM is TDL

I ENJOYED Maryfran Johnson's editorial "The TDL tango" [CW, Oct. 27]. Too Damn Lame? Not! I follow with a rather perverse delight the LLM (Ludicrous Letter Mania) that we seem to be so susceptible to in our industry. But I've never seen three seemingly innocent letters evoke so much laughter while expressing some of the biggest concerns that plague IT. I wonder if there's any truth to the old rumor that IBM has a BBB (Big Blue Book) listing all of its acronyms because nobody can remember?

*Dan Tannenbaum*
*Orange, Conn.*

Computerworld welcomes comments from its readers. Letters shouldn't exceed 300 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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# 'Booth bimbos' = women in IS? Poppycock

*Gary H. Anthes*

When it comes to women, I discriminate. My colleague Laura DiDio recently wrote about "booth bimbos," those near-naked models who work the vendor displays at Comdex in Las Vegas.

They can't tell computer chips from poker chips, but they earn up to $800 per day — plus tips from men who are, one assumes, more interested in sex than software.

Several female IS professionals DiDio interviewed were angered by this shameless spectacle, and understandably so. I'd be pretty embarrassed to see a bunch of male models doing even a partial "Monty" at a trade show.

**ON THE WANE**

A reader posted a reply to the story at *Computerworld*'s World Wide Web site (*www.computerworld.com*), deploring the booth bimbo practice. She suggested we vote it out by not buying the products of vendors who employ it.

It's possible that's happening already, accelerated by the rise in the number of women in IS. Two people who attended Comdex this year (I didn't) said they thought booth bimbos were on the decline as compared with past years.

**Give men credit for seeing past outdated stereotypes. Booth bimbos aren't representative of IS women.**

In any case, the sex spectacle at Comdex offends many women (but not, it seems, the models who were interviewed).

It's also demeaning to the vendors. In essence they are saying, "Our products aren't sufficiently interesting or important to draw you in, so we'll resort to cheap tricks."

And it's even a slap in the face to the men at Comdex. What the vendors are saying to us is that we are so juvenile and so bereft of constructive purpose that we'll let our Comdex activities be dictated by the sight of some skin.

**FACE VALUE**

But I part company with DiDio over her assertion that the booth bimbos in Vegas somehow discredit women in IS.

One IS woman says, "The damage done by booth bimbos is immeasurable."

Another IS woman asserts, "These women make it harder for the rest of us who are trying to be taken seriously."

That's just poppycock. When I think of women in IS, I do *not* think of Comdex booth bimbos, and I doubt many other men do, either.

When I think of women in IS, I think about my first boss, a wonderful woman who guided me as a programmer at Du Pont when I was 22 years old.

I think of Grace Hopper.

I think of the women who appear regularly on the covers of *Computerworld*, including all three cover persons in the Sept. 15 issue.

I think of that female IS manager who gave me the best interview of all for a recent story on the year 2000 problem.

DiDio says the IS women she interviewed at Comdex all wondered the same thing: What do their male counterparts think of the booth bimbos? The answer is simple: We hardly think about them at all. They don't influence our buying, and they certainly don't influence how we think about the female IS professional.

"Don't you feel like you're setting the cause of women back a couple of hundred years?" DiDio suggested to one of the models. That goes too far — much too far.

Give men credit for being able to see past outdated stereotypes. Booth bimbos aren't representative of IS women or of any women except booth bimbos.

Men can discriminate. □

*Anthes is Computerworld's senior editor, special reports. He can be reached at gary_anthes@cw.com.*

# Maybe NCs aren't a bad idea after all

*John Gantz*

Help me. I'm falling. Falling for the idea of network computers. If the thoughts I'm having stay in my head, I'll need an exorcist.

No, I don't mean the kind of Java-drenched network computers like the one Scott McNealy has embedded in his electronic key ring to operate a web-enabled door lock (true story).

I mean enterprise network computers, the kind of thin clients epitomized by the IBM Network Station or Network Computing Devices' Explora, which talk Windows and connect to multiple servers.

As a chief forecaster of network computers at IDC, this newfound affinity for them has me worried. Our enterprise network computer forecast is modest — 500,000 shipping worldwide this year, fewer than 10 million by 2001.

Those are little drops compared with the bucket of non-home PC shipments we forecast for the same period. I used to think that even if you gave away these things, nobody would use them. But if I'm truly smitten, will I lose my forecasting stripes?

For me, a love affair with network computers would mean I have come full circle from the mid-1970s when I covered the market for "smart" terminals — the network computers of yesteryear, without LANs or the Internet. That market was eaten alive by the PC.

People wanted to work *off* the network. They wanted to do their own thing.

But now everybody wants to be *on* the network. And let's face it, the PC is an ugly thing to hang off a network.

**REAL-WORLD EXPERIENCE**

I'm getting a view of this up close, as IDC rolls out a major Notes application across the company.

First, we have to upgrade half the PCs. Then we have to install Notes. Then we have to find out why the application doesn't work on some machines. Then we have to upgrade the server because we never understood the traffic we'd have.

Now we have to redesign the databases, which weren't intended for an entire enterprise to be banging on them, and so on.

The network computer concept looks pretty attractive now. Wouldn't it be better to have our handful of IS people managing a server farm than running across the campus (and world) messing with recalcitrant clients?

Besides, I learned at Comdex that network computers run Windows programs and can run them faster than PCs. They can talk to servers from different manufacturers running different operating systems.

And depending on the application, they can use less network bandwidth than PCs.

I dunno. This is the stage in the market where almost everything is in pilot phase, so we won't really have ratification for the concept — or know whether market forecasts are valid for a few years.

**Wouldn't it be better to have IS staff managing a server farm than running around, messing with recalcitrant clients?**

**OFF COURSE?**

But I'm beginning to think our forecast might be low. Microsoft will stir up interest by pushing the Windows-based terminal, which will legitimize the thin client without selling a lot of such terminals. The NetPC simply will be a shill for multiuser NT and will disappear into the depths of the average vendor's product line.

But the network computer will be there, running more Java all the time and looking more and more like a real alternative to client/server computing.

I'm sure I will come to my senses. My basic premise has always been that power in the user's hand always wins out over computing power doled out by a central resource and that the forces of chaos always win over the forces of order and structure.

And today's PC environment is chaos indeed. □

*Gantz is senior vice president at IDC in Framingham, Mass. His Internet address is jgantz@idcresearch.com.*

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## Briefs

### Searchers spreads ERP

The J. M. Smucker Co. is spreading Oracle Corp. applications throughout its enterprise. The Orrville, Ohio, maker of jams and jellies is installing an application package specifically for consumer-packaged goods industries. The software package includes Oracle applications for sales, marketing, financials and process management. Smuckers hopes to save $30 million with the new package.

### Parsons uses Perot

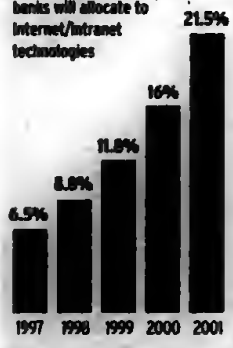
Parsons Corp., a Pasadena, Calif.-based engineering and construction firm, has outsourced its information technology operations to Perot Systems Corp. in Dallas. As part of the five-year, multimillion-dollar deal, Parsons named Perot's John Thomas as its chief information officer. Thomas will be a Perot employee but will report to Parsons CEO Jim McNulty.

### Stock network

The National Association of Securities Dealers, the Washington-based parent company of the Nasdaq Stock Market, has launched the first of seven Asynchronous Transfer Mode-to-Ethernet networks using 3Com Corp. technologies. The high-speed network is intended to help the organization scale, extend and manage network growth.

### 'NET INTEREST

Projected percentage of their IT budgets that U.S. banks will allocate to Internet/intranet technologies




Source: Meridien Research, Inc., Needham, Mass.

# IS recruiters rob Peter to pay Paul

▸ *Job-swap program turns clerks into techies*

*By Julia King*

UNTIL THREE months ago, systems analyst Jane Whitby was a payroll clerk at The Williams Cos. in Tulsa, Okla.

Today, a temp does her old job while Whitby — along with six other former clerks, dispatchers and other workers — develops and tests client/server systems at the $3.5 billion energy and telecommunications company.

Some might call it robbing Peter to pay Paul. But at Williams, the job-swapping is all part of a new "transformation training" program. The program was designed to fill an increasing number of open technology jobs with Williams employees who already know the company's systems and business processes.

"About a year ago, we were faced with a real imbalance. We had pipe-liners and engineers who needed to be displaced, but in IS, we had 250 open positions," said Roger Cude, director of learning services.

"Because Tulsa is not a hotbed for IS talent, and because we didn't want to lay off a bunch of people and then hire a bunch of new people, we developed this program," Cude said.

Retraining workers from other jobs to work in informa-

**IS recruiters,** page 38

TIM ARGO

**Williams Cos.' Tanya Hatcher (with manager Mark Bender) was one of about 80 employees who switched to IS careers**

*By Laura DiDio*

COMPETENT, CHARISMATIC, hard-working, risk-taking.

Those are the adjectives colleagues use to describe Dawn Lepore, chief information officer at Charles Schwab & Co., the San Francisco brokerage.

Four years ago, after a decade at the company, Lepore, 43, was named the first woman CIO in Charles Schwab's history. The responsibilities are enormous. Schwab, a Fortune 1,000 company with $2 billion in annual revenue, has sought to be a leader in electronic commerce, drawing new business from its use of the Internet and its in-house intranet and wide-area networking applications. It also needs to support 11,000 end users.

"Dawn is a phenomenal human being," said Dr. Carol Gallagher, who got to know Lepore for her study, "Women and the Glass Ceiling."

Gallagher said Lepore has a leader's knack for connecting with people personally, winning both peer and staff backing for her efforts. "She's also a real risk-taker. She confronts the odds and doesn't hesitate to go out on a limb if she believes in the project. She's very hands-on," Gallagher added.

Lepore joined Charles Schwab's IS department in 1983. In seven years, she rose to senior vice president of information technology.

The watershed event in her career occurred in the early 1990s. By that time, Charles Schwab, like many corporate be-

**Strategist,** page 38

# Supply-chain management smooths production flow

*By Thomas Hoffman*

AS A MANUFACTURER of wings and wing components for commercial and military aircraft, The Aerostructures Corp.'s build-to-order machine shops used to run into a lot of turbulence trying to move components through its fabrication processes.

Thanks to its recent use of Rhythm — a supply-chain management system from I2 Technologies, Inc. in Irving, Texas — Aerostructures has leveled out its workflow and has knocked $500,000 off its inventory costs.

In the past, when the Nashville-based company accepted a large order to build 50 "stringers," the stringers might get fitted for material one day and then sit idle for a few days

**Supply-chain,** page 40

# Tools help Coors top off sales

*By Kim Girard*
GOLDEN, COLO.

COORS BREWING CO. has tapped in to a host of new sales tools — and will soon be using the World Wide Web — to put more fizz into its revenue.

The company attributes its 6% increase in sales growth for the third quarter partly to giving its sales force new applications to help representatives access information about regional retail alcohol sales and gather internal sales information on their laptops.

For the first three quarters of this year, Coors reported sales of $1.4 billion — an increase of 5.8% compared with the same period last year.

Coors next year plans to roll out sales applications on the Web, working with its distributors online so the sales force can determine where the company can improve distribution

**Coors,** page 39

# IS recruiters hunt for talent in-house

CONTINUED FROM PAGE 37

tion systems is still quite rare, even in the midst of the current IS labor shortage. Talent-strapped companies have more often put their efforts into hiring foreign-born talent, attracting recent college graduates with big hiring bonuses and cool work cultures, and even relocating IS shops to cities that are considered to be fun. At Williams, IS trainees first are given a three-hour test to determine their aptitude for IS work. Of the 125 employees who signed up and took the test, 84 were eligible. Of those, all seven people in the first class, including Whitby, have completed the ultra-accelerated seven-week program

The Williams trainees spent the first three weeks learning computing fundamentals and programming languages, including C++ and PowerBuilder. The second four weeks were devoted to actual application building. Trainees worked in teams to deliver systems built according to mock user requirements.

"It was very intense. I would never want to live through those first three weeks again," Whitby said.

Neither would Tanya Hatcher, another trainee and former administrative coordinator who relocated from Williams' natural gas business in Ottawa, Kan., to take the training and a new IS job.

"I was working in a field location. I took care of payroll," Hatcher said. "But my husband and I are interested in moving around, and when this opportunity came along, I jumped on it."

After graduating last month, all seven career-changers are working in positions as associate systems analysts for which they're about 75% ready, said Mark Bender, director of network information services.

"The training does a good job of teaching tools and coding, but it doesn't start back at analysis," Bender said. So Williams is reformatting its curriculum for the next class to include more of an emphasis on systems development methodology, he said.

On the other hand, extensive familiarity with Williams' systems and business processes are two big advantages the career-changers bring with them into IS.

**Employees in Williams' intensive career transformation training could leave the program without any penalties after the fourth week, but none did.**

Most of the trainees are former power users, said Greg Miller, director of education at Dallas-based Stonebridge Technologies, Inc., the systems integrator that developed Williams' transition training curriculum.

The trainees "have a really good understanding of the ins and outs of the data. They know how to get into the car and drive it, but don't necessarily know how the engine works. But they can get in there and learn how the engine works pretty quickly. It's pretty amazing," he said. □

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# Strategist: Dawn Lepore

CONTINUED FROM PAGE 37

hemoths, was grappling with a multimillion-dollar migration effort to move from dumb terminals and mainframes to a client/server network.

Enter Lepore. She said she volunteered for the high-profile project knowing it could make or set back her career: "You must demonstrate your ability to lead something you don't know anything about. Take the risk, and be willing to fail," she said.

### LONG HOURS

To compensate for her lack of IT expertise, Lepore "relentlessly" recruited the best technical people at Schwab and outside the company, got them onboard for the network upgrade project and listened to their advice.

That entailed a lot of 60-hour workweeks to meet the deadline.

Lepore said she focused on leading her group as a team as much as she worried about the project outcome.

"Results did and do matter, but they don't only matter. People have to follow you where you're going. And you need people to help you over the hurdles," she said.

Apparently, they did. Upon completion of the project, Charles Schwab's top-level managers promoted Lepore to CIO soon after getting feedback on her performance from her co-workers.

A network administrator on the project, who requested anonymity, said Lepore won support among the IS staff. "Dawn was under a lot of pressure, but she was unfailingly patient, very hard-working. And she treated everyone from the secretaries to the CEO with the same degree of respect," he said.

### HUMAN TOUCH

Mike Sidell, senior manager of business systems at Charles Schwab's Electronic Brokerage Division, said Lepore has put a human face on technology. She was instrumental in forming a Women's Interactive Network Services group last year to mentor women from different parts of the company to executive levels.

Lepore credited her husband, Ken Gladden, a former Schwab employee who is now a programmer at Visa International, Inc., for his unstinting support in her career.

In 1990, the couple decided that Dawn would concentrate on the fast-track management career, while Ken pursued his love of technology.

"He's given me the support I need and is just remarkable. Ken is understanding about the pressures I'm under. We divvy up the chores at home," she said.

Now Lepore is about to confront her biggest challenge yet: preparing for the birth of her first child, due in April. She will take two months' maternity leave and plans to share child-rearing duties with her husband. □

# Auto group outsources IT to drive strategy plan

*By Jaikumar Vijayan*

COST SAVINGS MOTIVATE many outsourcing deals. But at the California State Automobile Association (CSAA), the principal reason behind a $500 million, 10-year deal was the need for a coherent information technology strategy.

The CSAA last month said it outsourced almost its entire information technology operation to MCI Systemhouse, the outsourcing unit of MCI Communications Corp., in a deal estimated at $500 million over 10 years.

The move will free up a core set of information systems staffers at the CSAA for strategic IT projects and long-range planning and will give MCI responsibility over daily IS operations and support functions, said Leo Conner, chief information officer at the CSAA in San Francisco.

"The primary driver behind the decision was not cost," Conner said. "It had more to do with a very real need for us to start paying attention to long-term technical planning."

For example, the CSAA and MCI have already begun a study to develop an enterprisewide IT architecture.

This standard technology base will replace the hodgepodge of currently installed hardware, software and operating systems. One early result of the study: The CSAA is replacing a mix of four operating systems with Windows NT.

"More often these days, outsourcing is about business and strategic value," rather than just costs, said Allie Young, an analyst at Dataquest in Westboro, Mass. "Where IT is not a core competency, organizations just want to have access to technical skills without having to actually own them, retain them or train them."

The CSAA, an affiliate of the American Automobile Association, provides an array of travel, financial, insurance and automotive consumer services to nearly 4 million members. As part of the contract, MCI will give the CSAA remote mainframe and midrange processing services, network management, enterprise help desk, PC support, maintenance and procurement, application development and year 2000 services.

MCI will move the CSAA's data centers from San Francisco to its outsourcing center in Napa Valley.

About 235 CSAA employees have been transferred to MCI, and the CSAA has retained about 30 IT employees.

Conner said that when the decision to outsource was first announced in February, a lot of employees were concerned about losing their jobs. So the CSAA hired a consulting firm to handle employee transition issues and to keep workers fully updated on the progress of the arrangement.

The CSAA has a full-time manager for the contract and has negotiated several service-level agreements and financial incentives if certain business goals are met.

"We are contracting for business results, not for the hours of work," Conner said. □

# Tools help Coors top off sales

CONTINUED FROM PAGE 37

and find new sales opportunities, said Julie Butcher, Coors' group manager for sales and marketing systems.

Going online with an intranet application is a strategic trend within larger corporations that want to simplify the way they provide sales forces with up-to-date information, said Phillip Redman, an analyst at The Yankee Group, a Boston-based consultancy.

**Coors sales staff will automate presentations using laptops**

The Golden-based brewing company, the third-largest in the U.S., has a sales force of 250 people standardized several years ago on Compaq Computer Corp.'s 5280 PC notebooks equipped with 33.6K-bit/sec modems. The company supports eight offices in the U.S., which are connected to the main office database via frame-relay links.

Salespeople also dial in directly to a mainframe computer at A. C. Nielsen Merchandising Solutions, an outside agency that tracks alcohol sales information for specific regions.

In January, the company also began writing a proprietary program called the Coors Online Market and Evaluation Tool (COMET) that was rolled out during the beer industry's peak season, which starts Memorial Day weekend.

COMET was written internally using Oracle Corp.'s Express online analytical processing server. It enables salespeople to dial in to the corporate network to gather information from distributors about beer consumption everywhere from bars to airlines, grocery stores and ballparks, Butcher said.

"We repackage [the information] to see whether the promotions we're running are increasing the volume of beer we sell," she said.

COMET details what distributors sell to retailers, including pricing, brand and unit numbers. Salespeople also use Apollo — IRA Corp.'s graphic imaging application — to view what their display will look like in the stores and to suggest changes to store managers that could enhance sales — for example, moving a specialty brew to a promotional microbrew shelf.

Redman said Coors is bucking the trend in designing its own sales force applications; most companies are investing in out-of-box solutions. "It's extremely expensive to develop in-house," he said. From the field, Coors account executives download sales information from the previous week, check retail sales information and make adjustments using that data. Coors plans to automate presentations, which would let salespeople tap in to multiple data sources on their laptops and add information easily to a Microsoft Corp. PowerPoint presentation, said Nick Sherwood, an IT business analyst at the company. □

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# Virtual car design pays off

*By Jaikumar Vijayan*

IT IS MADE IN America. Packs 550 horsepower. Has top speeds in excess of 200 mph. Costs $150,000 a pop. And took just three months and $700,000 to build from scratch.

The Romulus Predator from M&L Auto Specialists, Inc. in Two Rivers, Wis., may not be everyone's idea of a family car. And it may take a while yet to become the next Lamborghini.

What it is, though, is a good example of how fast computers, the right software and virtual prototyping can help even a tiny manufacturing shop such as M&L build intricately engineered products — quickly and cost-effectively.

M&L, founded in 1980, designs cars aimed at collectors and makes recreations of famous cars such as the Ferrari and the Lotus.

**NO MODELS NEEDED**

Virtual prototyping — a technique that has floated around in automotive, aircraft and other design shops for several years now — is a way to bypass multiple physical model-making stages using realistic high-speed, three-dimensional visualization and digital prototyping.

Over the years, the underlying hardware, software and integration tools that make such prototyping possible have become cheaper and improved to the point where manufacturing shops literally can do away with expensive physical models altogether, analysts said.

"What is outstanding about this whole thing is how affordable very powerful computing and graphics tools have become" said Marcia Brooks, editor of "Engineering Technology Advisor," a newsletter in Milwaukee.

Mark Gerisb, the primary designer of Predator and CEO of M&L Auto, estimates that virtual prototyping helped him knock at least three months and several hundred thousand dollars off the development cost of his car. And he was able to move from design to car without building a physical mockup, Gerish said. Typical automotive designs require two to three such models, he said.

Virtual prototyping for things such as changes in the car's roofline, hood opening or light mounting "allows us to do in minutes what would have taken days otherwise," he said.

The project was put together on hardware and software from Hewlett-Packard Co. and four vendors of mechanical-design software.

HP Unix and Windows NT workstations made up the hardware. EDS Unigraphics in Maryland Heights, Mo., supplied design-modeling software. Engineering Animation, Inc., in Ames, Iowa, provided visual-communications and digital-prototyping software, and the MacNeal-Schwendler Corp. in Los Angeles provided finite element modeling software. □

The Romulus Predator was developed in only three months

# KPMG helps NASA fly right

▸ *Financial management app runs on intranet*

*By Matt Hamblen*

NASA RECENTLY tapped KPMG Peat Marwick LLP to develop and maintain for 15 years a $186 million financial management system.

The system will replace older systems that differed from one another at the National Aeronautics and Space Administration's headquarters and 10 centers.

The system also will create uniform applications for ordering travel, logging time and performing other functions for all 18,000 NASA users.

Turning over responsibility to Washingtoo-based KPMG will let NASA focus on its key mission of space exploration, officials said.

"We're in the midst of downsizing, and there aren't enough people left to do the old processes, so we have to streamline and find alternatives," said David Howell, associate chief financial officer at NASA. "To implement something like this, you need the experts, and that's difficult to do in-house without an awful lot of training."

End users will be able to access the new software applications via a Netscape Communications Corp. Navigator browser over a NASA intranet to perform accounting, travel, time and attendance, procurement, management, and budgeting processes.

**MONEY SAVED**

The uniform approach will result in "enormous" cost savings, Howell said. The proposed system will "streamline and integrate our core financial processes and will provide our customers with timely and accurate information," he said. Such uniformity is a requirement of the federal Office of Management and Budget.

Howell cited KPMG's depth of knowledge in government accounting and systems implementation as one reason it won the long-term contract out of a field of 10 bidders. □

# Supply-chain management

CONTINUED FROM PAGE 37

before being heat-treated and contoured in a stringer oven. Stringers are pieces of contoured metal used to connect the top of a wing with a support structure and are up to 50 feet long.

The old setup wasted time. The stringer ovens and other manufacturing equipment often weren't being used efficiently because Aerostructures couldn't schedule any smaller jobs around lapses in production. The company's antiquated manufacturing resource planning (MRP) system wasn't designed to pinpoint work schedules for manufacturing equipment.

And because Aerostructures' custom-made products typically move through 220 operations before they are completed, the company couldn't afford to let its unfinished products sit around for too long.

"If an order was due tomorrow, the system could recognize that, but it couldn't tell you that you could run two smaller jobs in the same amount of time," said Julie Peeler, corporate vice president of manufacturing and information systems

Aerostructures uses a 10-year-old MRP-II system from McCormack & Dodge called Production Inventory Optimization System (PIOS) running on an IBM S/390 MVS mainframe.

Aerostructures' legacy setup also threw its build-to-order inventory management out of whack because the MRP system was backing up the company's lead times on production runs.

That made it difficult for Aerostructures to order aluminum, titanium and other materials.

Rhythm, which has been up and running since the middle of last year, has helped Aerostructures schedule jobs more effectively. The PIOS system feeds planning information into the IBM RS/6000-based Rhythm system at night using its Computer Associates International, Inc. CA-IDMS database as a gateway.

"This is like rocket science; it's tricky stuff"

Rhythm then calculates how work orders should be prioritized and uploads that information back to the PIOS system before the next morning's MRP run, Peeler said.

Aerostructures has invested $650,000 in hardware, software and support.

Aerostructures' use of Rhythm reflects just how hot these manufacturing optimization systems are right now, analysts said. "The win for a company like Aerostructures is being able to smooth out their interenterprise supply-chain operations," said Dennis Byron, an analyst at International Data Corp. in Framingham, Mass.

Still, installing such a system is half the battle, said Barry Wilderman, an analyst at Meta Group, Inc., in Stamford, Conn. That's because systems such as Rhythm or manufacturing scheduling software from Rockville, Md.-based Manugistics, Inc. are so complex.

Peeler agreed.

She said it took 12 most of the summer of 1996 to refine the system to meet Aerostructures' specs. "If [optimization] was easy, lots of people would do it," she said.

Aerostructures is midway through replacing its McCormack & Dodge MRP system with The Baan Co.'s enterprise resource planning (ERP) system.

Peeler said it isn't clear if Aerostructures will keep the 12 system, because Rhythm can be interfaced to, but not integrated with, the Baan ERP system. □

Aerostructures uses 12's Rhythm for efficient scheduling

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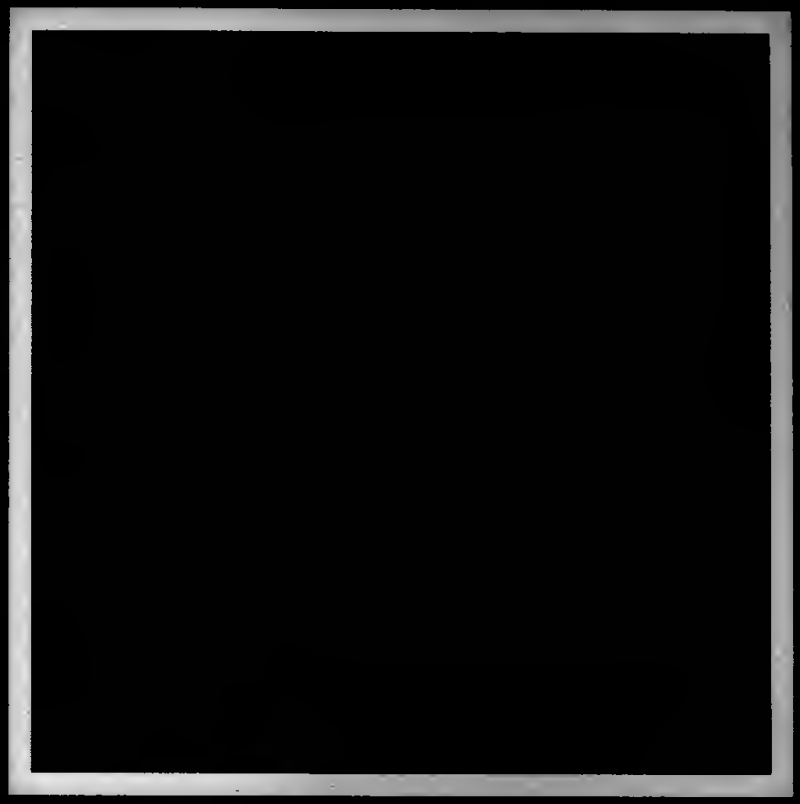

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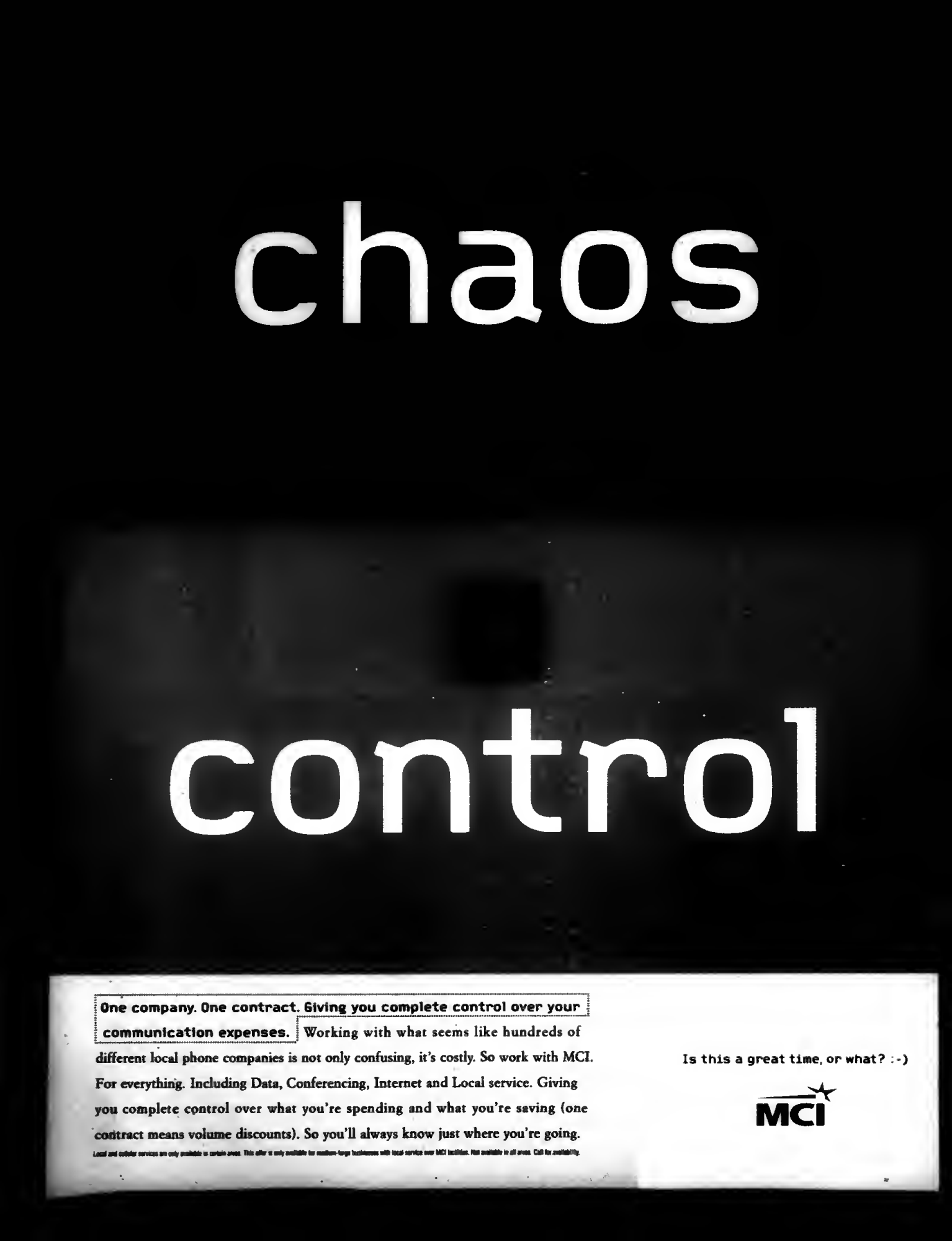


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Share of the browser market

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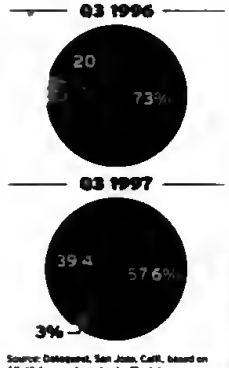


Source: Dataquest, San Jose, Calif., based on AltaVista search engine traffic data

# Surfing into a new career as webmaster

*By Sharon Machlis*

EDWIN HORD was a fiftysomething technical writer when a colleague last year put a book about Hypertext Markup Language on his desk.

Today, Hord heads a six-person team that oversees World Wide Web site work and says, "If the boss knew how much fun I was having, he'd probably cut my salary."

The technical communications and graphics group at Johnson Engineering Corp. in Houston develops Web sites and some public education Web material for Johnson's chief customer, NASA. Johnson supports NASA training efforts in Houston, including the design of astronaut training equipment.

**One recent Web project posted requests for proposals and price quotes and let contractors respond by E-mail.**

One recent Web project was to post requests for proposals and price quotes on the Johnson site and let contractors respond by electronic mail. "It's saved a whole lot of fax time, copy time and telephone time," said Robbie Wilson, logistics manager at Johnson Engineering.

Hord's career switch was launched when he volunteered for a joint NASA/Johnson committee aimed at developing better ideas for management. "Someone said we ought to have a Web page," he recalled. "I said I'd help."

A fellow committee member gave him IDG Books' *Netscape for Dummies*, and he was intrigued by a chapter on becoming a Web content producer. "I was so impressed with how easy it was," he said. "I experimented a little ... and I was hooked."

He began subscribing to "every magazine that hit the racks" and surfing around looking for sites he liked. "You don't have to steal, but you can learn from them."

Hord put together a sample page for internal use, which included direct links to various NASA procurement and contract sites, and demonstrated it for the company president. "He was amazed I could get so much information on a little diskette," Hord said with a laugh. After explaining that most data resided on the Web, not the floppy disk, he beefed up his offering to show an image map that lets Johnson employees click on locations and go directly to relevant NASA procurement sites.

He lobbied for the company to create a Web site and eventually became the head of the

**Webmaster, page 47**

# Web focus shifts to back-end development

▸ *New tools designed to build server-side apps for data access; business logic boosts performance*

*By Carol Sliwa*

NOT SO LONG ago, a tool that could help build smart-looking pages was enough to satisfy many a Web developer.

But that was Web-years ago. Now demand is on the rise for tools that can build more interactive applications that grant easy access to back-end data and tailor the information to it for a particular set of users — but that don't necessarily use downloadable applets.

"A lot of the action now seems to be on the server," said Wayne Kernochan, an analyst at Aberdeen Group, Inc. in Boston. "The general thought is you don't need to spruce up the browser client too much, if at all. Most of the logic is still kept away from the client."

High-end World Wide Web development tools are oriented toward distributed, server-side applications that allow for high transaction rates, with more communication between client and server. They support programming languages such as Java and C++. And they can concentrate business logic on an application server sitting between the client and the database to maximize performance.

**CLOSERLOOK**
**Web Development Tools**

"These are generally Web tools that are for real applications," said Stan Lepeak, an analyst at Meta Group, Inc. in Stamford, Conn.

But "tools" isn't the word some vendors in this end of the market use to characterize their products anymore. NetDynamics, Inc. (*www.netdynamics.com*), for instance, prefers the term "enterprise network application platform" for its Java-based NetDynamics 4.0. The product includes an application server and other components, in addition to a development suite.

Comparable products include

**Development tools, page 47**

REVIEW▸ *Trellix 1.0*

# Web tool aids in design and navigation

*By David Strom*

A NEW PRODUCT from Trellix Corp. can help build rich hyperlinked documents, but it falls short in several areas. Users of Adobe Systems, Inc.'s Acrobat or sophisticated Hypertext Markup Language (HTML) programmers, read no further. This won't get you excited.

Before I delve into the details, I want to be up-front about my own biases. I don't care for most World Wide Web sites that make use of frames. I don't use Word style sheets (which are preselected sets of formatting

**Navigation, page 49**

▸ *Trellix Version 1.0*

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# Development tools shift to the server

CONTINUED FROM PAGE 45

HahtSite from Haht Software, Inc. (*www.haht.com*) and Sapphire/Web from Bluestone, Inc. (*www.bluestone.com*). Both products also provide distributed application service and varying levels of Java support.

Despite the trend, there still are some lower-end tools that are adequate for data access, analysts said. If scalability isn't the prime concern, Allaire Corp.'s (*www.allaire.com*) Cold Fusion, Microsoft Corp.'s Visual InterDev or EveryWare Development Corp.'s (*www.everyware.com*) Tango might be up to the task. All allow a series of database fields to be merged onto a Hypertext Markup Language (HTML) template and served up to a Web page.

Netscape Communications Corp.'s new Visual JavaScript tool and SilverStream Software, Inc.'s (*www.silverstream.com*) tools offer more interactive application functionality, with Java support on the client and sophisticated user interfaces, analysts said.

And the larger database vendors such as Oracle Corp., Sybase, Inc., Microsoft and IBM are getting into the act.

"Companies like Microsoft and Oracle are extending the basic capabilities of generating HTML either into their servers or into their tools," said Philip Costa, an analyst at Giga Information Group in Cambridge, Mass. "So it becomes sort of a commodity function."

But many developers may prefer to stick with development tools they have used — such as PowerBuilder from Borland International, Inc. (*www.borland.com*) and Forte Software Inc.'s (*www.forte.com*) application environment — and wait for them to become more Web friendly, Lepeak said.

"If you have a developer that's already used it, and you've already paid for it and all you're looking at is an incremental license upgrade, it makes a lot of sense, rather than having to go out and buy a new tool and learn how to use it," Lepeak said. □

# Webmaster

CONTINUED FROM PAGE 45

group overseeing Johnson's Internet efforts.

Such career paths are common, according to Owen D. Johnson, webmaster at the Webmasters' Guild, an organization of Web professionals based in Cambridge, Mass. "It is very common, in fact, for webmasters to come from nontechnical backgrounds," Johnson said. Along with technical skills, Web teams also need project management, graphic design, writing and market expertise, he said.

Hord said he didn't get a pay raise in his new position, but he is extremely happy with the move nonetheless. "I've never been so excited in my life," he said. "What a way to make a living." □

**NEW PRODUCT**

**PEAKSOFT CORP.** has announced NetMagnet, software that manages World Wide Web research.

According to the Bellingham, Wash., company, the software lets users trace their browsing history over time and organize, edit and automatically refresh researched Web pages.

NetMagnet costs $79.95.

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## Reliance for Security and Flexibility

**Philippines Social Security System relies on the strength of PATROL to manage its distributed computing system**

When the Philippines Social Security System (SSS) decided it needed a strong tool to manage the distributed Oracle databases and Unix servers across its nine fully functional data centers, it chose the PATROL product from BMC Software.

"Our aim was to stop the IT department from getting trapped in a cycle of systems failures which commonly occurred due to database errors and crashes. In addition, our huge database of applications, systems resources and files needed automated enterprise-wide monitoring and coordination along with proactive systems management to analyze and control the performance of our distributed computing environment," says Tony Maralit, manager, database administration group, SSS.

The SSS evaluated various products and found, with the exception of PATROL, they did not support all multiple platforms in the organization. In particular, PATROL was the only evaluated product that could support SSS machines running on DEC Ultrix.

"With PATROL's multi-vendor support, its ability to improve management efficiency and speed up system maintenance, through the automation of many routine tasks, it was the natural choice," Maralit explains. The SSS also took into account the strong local support and the technical expertise that would be provided by BMC Software's distributor Leverage Systems Technologies; and that with PATROL's product-specific modules, time and effort required to train staff would be substantially reduced.

The 16 million members of the government-owned SSS access a range of financial services, such as housing, salary, and stock share loans, through 54 branches across the country. Of these, nine branches serve as fully-functional data centers.

The results with PATROL implemented were immediate. Reduced downtime led to improved customer service and heightened staff productivity. Costs relating to technical support were reduced too as the SSS no longer had to rush support personnel to various branches to correct system errors and restart crashed systems.

PATROL product-specific expertise for monitoring and automating processes, also leveraged the technical skills of the administrative staff and helped reduce training requirements, as well as administrative overheads. Reporting also became more efficient as PATROL kept automatic and regular track of network and database activity. PATROL easily addressed the issue of central monitoring of remote Oracle databases as it automated and centralized the control of critical elements.

Currently, PATROL consoles are running on the organization's SCO Unix, DEC/OSF1 and IBM RS/6000 machines. Its agents are running on SCO Unix, DEC/OSF1, IBM RS/6000, Sun Server and DEC Ultrix machines. All databases and Unix machines in the remote offices are monitored centrally from the head office using PATROL. With proactive systems provided by the product, only two database administrators and two systems administrators are needed at the head office to monitor and control the databases and Unix machines in all nine offices.

The SSS is now planning to establish a back-up and recovery center with an additional license of PATROL. "To be successful in a changing global marketplace, an organization must be flexible and able to address new business opportunities," explains Maralit. "Hence, each SSS data center has its own database to help it respond quickly to the local environment.

"PATROL is event driven and can manage virtually any application providing a pragmatic alternative to centralized corporate databases. As a result, we now have PATROL-based management control from the head office," says Maralit. "We would like to have the same flexibility and support for the back-up and recovery center, which is why we have requested another license."

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*Jesse Lipcon, Vice President AlphaServer Business Segment, DIGITAL Equipment Corporation*

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REVIEW▸ *Trellix 1.0*

# Design, navigation support

CONTINUED FROM PAGE 45

instructions), and I still do most of my HTML coding by hand. If you do, too, you'll absolutely hate Trellix 1.0.

On the other hand, if you love frames or know your way around Word style sheets and macros, then this is a product you have to get immediately.

So what is Trellix? The product is really a way for people to visualize the structure of complex documents and provide a simple way to navigate around them. It is also a tool to design entire Web sites, and it can be used to prepare sophisticated presentations. Trellix is the latest work to come from Dan Bricklin, inventor of Visicalc.

With Trellix, I can design how the document will be structured. Trellix allows me to imbed graphics, uniform resource locators (URL) and references that work the same way as HTML links. The product runs on Windows 95 and Windows NT 4.0. I tested it on the latter with 32M bytes of RAM and a 200-MHz Pentium clone machine.

**IMPORT-SAVVY**

You don't have to create your Trellix documents from scratch; Trellix can import Microsoft Word documents and make some guesses about structure from headings and font sizes. Here is where following style sheets is helpful: The more structure you have embedded in your original Word document, the easier it will be to get Trellix to arrange your work into its own format.

But embedded tables in the document I imported came across as straight text that needed lots of cleaning up. Also, URLs referenced in my Word document came across with their links ignored. And Word 95 or 97 documents are the sole document import format — it would be nice to import PowerPoint presentations, too.

Trellix imports various image formats such as Tag Image File Format, JPEG, graphics interchange format and Windows bit maps.

Once you finish arranging the parts of a document the way you want them, you can export the document to a series of Web pages or use the viewer to create presentations with complex documents.

There are some rough edges as you might suspect for a version 1.0 product. Before I installed Word, Trellix gave me a rather cryptic OLE error when I tried to import a Word document. I would have preferred Trellix to make use of the built-in WordPad application as a fallback to Word.

When I imported large images, I couldn't scroll across the screen properly. Trellix automatically installed the Microsoft Web Publishing Wizard over an existing copy on my machine without asking me if this is what I wanted. And viewing a URL from within Trellix launches a new copy of your browser, even if you already have one running. None of these are fatal, just annoying.

So will Trellix work as a general purpose Web site creation tool? Not really.

Other products, such as HTML Transit from InfoAccess, Inc. in Bellevue, Wash., are better at converting Word documents in bulk to HTML.

And once you convert your Trellix project into HTML, you will have a hard time making any sense of the resulting Web pages because of the heavy use of frames. You are better off making even the smallest changes to the original Trellix format, then re-exporting the entire project to a new set of HTML pages. And that can be cumbersome.

But if you have developed good habits when using Word style sheets, you will probably take to Trellix. As for me, it is back to adding my HTML tags by hand for the time being. □

*Strom is an independent reviewer in Port Washington, N.Y. He can be reached at david@strom.com.*

Advertisement

# Smooth Transitions

## Louis Poulsen & Co. smoothes their transition to SAP R/3 and open systems with PATROL

Denmark's Louis Poulsen & Co. A/S is known internationally as the manufacturer of the world-famous PH lamps, and as sellers of electrical appliances. Louis Poulsen has its production wing based in Denmark, but sales and distribution offices are spread around the world on four continents. Consequently, it is a company with simultaneous requirements for advanced production management, effective logistics, and continuous budget control across a geographically distributed environment.

To more effectively meet these requirements, Louis Poulsen decided to move their IT operations from an IBM mainframe system to an SAP R/3 solution running on IBM RS/6000 hardware with the Informix RDBMS.

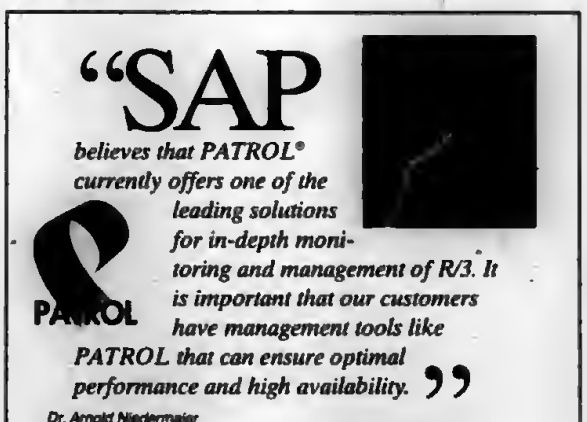
The benefit is obvious when the entire system is running smoothly – no matter where in the world requests come from, everyone receives up-to-date and exact information. However, when things are not running smoothly, the problems are also obvious.

Louis Poulsen realized they could more effectively utilize client/server solutions if they made automated management part of their overall management strategy. Their first step was to introduce the IBM NetView product for management of their network environment. The next step was to incorporate automated application and database management through the PATROL® Management Suite of products from BMC Software.

Peter Jacobsen, manager of IT operations states that, "without a doubt, automated monitoring of the Informix database, especially the PATROL features that help ensure log files do not overflow, has helped avoid a number of situations that would otherwise have resulted in an outage."

When BMC Software announced in 1996 a PATROL Knowledge Module that would proactively manage SAP R/3, it was an easy decision for Louis Poulsen to trial the product. "SAP R/3 comes with a systems management tool called CCMS," says Jacobsen, "but to use it you need manual interaction. PATROL gave us the ability to automatically monitor relevant R/3 parameters and, at the same time, have information about them presented to us in context with other information from PATROL about our databases and platforms. With PATROL, we get a complete overview about how our application environment is operating."

Through PATROL, Louis Poulsen learned of a number of important parameters in their application environment that could be monitored and tuned to support higher application availability and improve performance – parameters they didn't even know the existence of before PATROL. Now, at any time, they have instant access to this important information. Says Jacobsen, "With PATROL, we have a tool that allows us to drill deep into our systems, applications and databases for information. Plus, PATROL lets us know if changes we are making in one area of our environment will have a negative impact on other areas. There are still many things we have to learn about PATROL, but we definitely know it is necessary for future management and tuning of the system as well as our insurance for keeping up with the end users' demands for availability."



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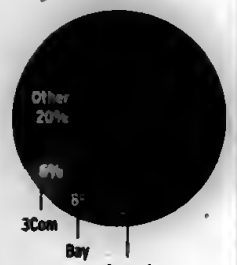
## Briefs

**Worldwide router market leaders**




TOTAL UNITS SHIPPED IN Q3 1997: 356,300

Source: Dataquest, San Jose, Calif.

# Don't let users shut out customers

*By Patrick Dryden*

LIKE MANY BUSINESSES, John Hancock Mutual Life Insurance Co. seeks ways to guarantee brisk response for customers who dial in to its World Wide Web site.

But a bigger Internet pipeline and faster servers won't be enough to assure adequate performance for electronic-commerce applications due next year, said Terry Dymek, director of infrastructure design at John Hancock in Boston.

NETWORK BANDWIDTH

"We must make sure some knucklehead downloading a big file doesn't whack a customer who's trying to do business with us," Dymek said.

To control the flow of traffic in and out of network access points, Dymek is evaluating tools designed to allocate limited bandwidth among internal users and external customers.

Firewall options that add such control are available from vendors including Checkpoint Software Technologies Ltd. in Redwood City, Calif., and Ukiah Software, Inc. in Campbell, Calif. Packeteer, Inc. in Campbell and Xedia Corp. in Littleton, Mass., recently added models of their network access controllers. And start-up Allot Communications, Inc., also in Campbell, plans to preview a similar combination of hardware and software at Internet World '97 this month.

Each vendor's approach to bandwidth management differs significantly, and no clear leader has yet emerged.

"When somebody gets the formula right, making them easy to test and use, these products will take off," said John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo.

ERIC FAGE

There is a "compelling need for this kind of tool," he said, because network managers

Customers, page 52

# Technology drives ad business

▸ *ATM network makes multimedia easier*

*By Bob Wallace*

GREY ADVERTISING, INC. recently replaced a shared Ethernet network with an ATM backbone so it could set the stage for a variety of new applications that change the way the agency does business.

It moved out a capacity-challenged Ethernet network as part of a $2 million network project to make way for two innovative video applications and to support existing media-buying and electronic-billing systems.

The old network couldn't handle the crush of multimedia ad traffic for clients including Dow Corning Corp., Kraft Foods, Inc., Procter & Gamble Co., the Lee Apparel Co. and Nokia Corp., according to Mickey Sidhu, information systems manager at Grey.

Grey turned to Asynchronous Transfer Mode (ATM) equipment from 3Com Corp. for its Manhattan headquarters and built a nationwide wide-area network to link its satellite offices.

"I don't want to say the old network was terrible, but it certainly wasn't reliable," Sidhu said.

The ATM network enabled two applications — Emotions, a video application that lets employees in different locations simultaneously play and edit TV commercials frame-by-frame on desktop computers; and Spot Rocket, which digitizes pre-existing broadcast commercials for transmission and editing across Grey's WAN.

But there is more to the network than video applications.

Grey has created a custom media-buying application that quickly analyzes TV programs' ratings and demographics data

Technology, page 52

**GREY'S NETWORK APPLICATIONS**

**Emotions:** Video application lets employees in different locations simultaneously play and edit TV commercials frame-by-frame on desktop computers.

**Spot Rocket:** Digitizes pre-existing broadcast commercials for transmission and editing across Grey's WAN.

**Custom media-buying application** analyzes TV programs' ratings and demographics data so the agency can selectively purchase airtime on shows whose audiences are most likely to purchase its customers' products.

**Electronic billing system** lets the ad agency automatically invoice clients' media purchases.

FRAME RELAY

# Volvo taps AT&T for global net

*By Matt Hamblen*

SOON, WHEN A VOLVO truck engineer from Sweden logs on to a PC at the Greensboro, N.C., Volvo truck plant, he will have access to all the truck data he uses at home.

That's happening because Volvo Data North America, Inc. in Greensboro is building a global network. It has recently hired AT&T Corp. in Basking Ridge, N.J., to create a 200-node frame-relay network with its truck dealerships. A separate managed router service links more than 30 warehouses and remote sites for its subsidiaries that build cars and trucks, as well as marine and construction equipment.

"Our goal is to have all data

Volvo, page 53

# Customers shut out by users

CONTINUED FROM PAGE 51

must take charge of service levels.

A few early adopters have already discovered the benefits of these tools.

**FIGHT FOR ACCESS**

For example, Avenue Edit, Inc. saved the cost of upgrading its wide-area network link to a remote office.

Users in the California branch had to fight for access to the 56K bit/sec. path to headquarters in Chicago, where Unix servers host all applications for the television postproduction company.

During peak periods, someone launching the file transfer protocol at a graphics station could slow by as much as a minute the response time for those running Telnet-based applications, said Robert Fergusoo, system administrator at Avenue Edit.

**"When somebody gets the formula right, making [network tools] easy to test and use, these products will take off."**

**– John McConnell, McConnell Consulting**

"That's a real problem for accountants who key in numbers then look at the screen and wonder where they went," Ferguson said.

He said he used PacketShaper from Packeteer to assign a minimum performance level for Telnet traffic, giving users subsecond response times. Electronic mail gets second priority, and Web surfing gets the lowest priority, so essential work always takes precedence.

"Managing use of the existing bandwidth let us postpone an upgrade to a faster link at a higher recurring cost," Ferguson said.

Internet service provider XS Bandwidth Associates in New York almost had to develop its own traffic manager to deliver a minimum information rate for commercial and residential service throughout Manhattan, said Jimmy Rodgers, sales director at the company.

XS Bandwidth already applies Xedia's AccessPoint at six buildings with 45M or 155M bit/sec. aggregate links to its network operation center. A commercial customer such as a Web hosting company can buy 3M bit/sec. guaranteed minimum bandwidth with burstable service to 10M bit/sec.

XS Bandwidth next year will use this tool to upgrade Internet access for residents of 250 buildings managed by Trump Organization, Inc. They will get LAN access speeds. "Without a regulator, everyone would get first-come, first-served access," Rodgers said. □

# Technology drives advertising business

CONTINUED FROM PAGE 51

to help the agency identify airtime on shows with the size and type of audience an advertiser wants. The advertising agency also can automatically invoice clients' media purchases using an electrooic billing system that doesn't rely entirely on the ATM network.

Grey also custom-developed a document-imaging application that lets users scan and manipulate any text or graphical print ad.

"Instead of users coming to us with their needs and us responding, we take action and provide them the technology they need, and then market it aggressively to them so they know what they can do with it," Sidhu said.

Grey chose ATM because the ad

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agency needed a high-speed technology that supported traffic prioritization, and ATM was the only game in town.

"If I had to do it over again today, I'd still pick ATM, as Gigabit Ethernet products aren't standardized yet," Sidhu said. "But if I had to do this eight months from now, I'd consider Gigabit Ethernet."

Gigabit Ethernet doesn't have traffic prioritization features and wasn't designed to handle voice.

"They've done an excellent job matching their applications with the technology that can best support them," according to Daniel Briere, president of TeleChoice, Inc., a Verona, N.J., consultancy.

"Grey is taking full advantage of ATM's capabilities to roll out applications that improve the way the firm operates," Briere added. □

# Volvo taps AT&T for net

CONTINUED FROM PAGE 51

available anywhere, given your authority. At least for engineering, we will have that quite soon," said Lars Astrom, president of Volvo Data North America.

"What we are trying to do is be smarter than our competitors," Astrom said. "We are trying to work out synergies between our various companies and build competitive advantages, and this means we have a large commitment in IT to fit everything together."

With help from the new network, Volvo hopes to boost its tractor-trailer from third place worldwide to first or second.

Astrom leads a company of 90 information systems staffers who manage all the North American networks and work with staff at four separate North American Volvo companies that build applications. One of his top priorities is to allow employees worldwide to share databases of information on standard modules for trucks, which vary in design by country.

Why AT&T? "We were looking for someone who could provide a good cost solution and good quality, and they had the brand name and history that mattered," Astrom said.

Volvo also uses network services from Sprint Corp. in Kansas City, Mo., as well as an international link to Europe by Global One, a joint venture of Sprint, Deutsche Telekom and France Telecom, which replaces a link by AT&T.

**Volvo's Lars Astrom: "What we are trying to do is be smarter than our competitors"**

AT&T had some delays as it set up the frame connections, but Astrom said Volvo has been pleased overall because of solid service offered by "a very good account team" in Greensboro. "When we have had problems, there has always been management responsiveness."

Volvo managed to build some unusual guarantees into its frame-relay contract, including rebates for service failures and the ability to find another carrier if one frame-relay node fails, according to Astrom and AT&T officials. With many network services vendors knocking on corporate doors, AT&T's reputation and account teams' support is valuable, said Rosemary Cochran, an analyst at Vertical Systems Group, Inc. in Dedham, Mass.

"On an absolute basis, AT&T's prices are higher than the competition, but it depends on the contract that's written" and the intangibles of service, she said. "Anecdotally, we hear that how well a carrier's account support team is trained, understands the data applications and networking and the business typically makes the difference for customers." □

WITH DISTRIBUTED APPLICATIONS, A PROBLEM IS ONLY
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# Software

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## Briefs

**"The software is the enabler. The ultimate success or failure of a re-engineering project is in the people and the business process and how you execute those new processes."**

– Black & Decker's Mark Dailey on the toolmaker's implementation of SAP's R\3 and other software systems

**See story at right**

# Black & Decker turns to new tools

*By Randy Weston*

BLACK & DECKER, INC.'s North American power-tool division is turning to unfamiliar tools — client/server software — to improve its customer service and planning.

The company is moving from a set of homegrown mainframe applications to new packaged applications, including SAP AG's R/3 business process automation software and Manugistics, Inc.'s supply-chain management software.

Black & Decker hopes a technology overhaul will give employees the tools to execute a massive re-engineering of business processes to better serve the stores such as Wal-Mart and Kmart that carry Black & Decker products.

The power-tool division in Towson, Md., hopes to have the entire project, begun earlier this year, completed by mid-1999. It is implementing Manugistics first to get early return on investment through reduced inventory and better planning. It will tie the system to existing mainframe applications while R/3 is rolled out.

**Black & Decker,** page 56

# Informix: Simplify, simplify

▸ *Merges product line into one database with options*

*By Craig Stedman*

ALL FOUR ONE.

That is the new mantra at beleaguered Informix Software, Inc., which is smooshing its four databases into a single product line and cutting some prices. Announced last month, the repackaging leaves Informix with a core database engine and a menu of options supporting data warehousing, object technology and other functions.

The change is meant to blunt sniping from rivals that the Informix database family is disjointed, while also making it simpler to do business with the Menlo Park, Calif., company.

Some users said the new packaging approach should at least make upgrading to Informix's parallel and object/relational technologies less costly. "This could make a big difference as I look at budgeting over the next two years," said Janice Richardson, manager of systems and operations for the city of Aurora, Colo.

**Visa's John Valente: "Informix's big problem has been their financial management, not their product line"**

The Informix object-enabled Universal Server could boost processing speeds and let the city build more complex functions into its databases, Richardson said. But the software's

**Informix,** page 60

**Raven, a network of telescopes like the one above, gives the Air Force and NASA up-to-date locations on all 8,000 satellites and celestial bodies they track in order to protect the space shuttle and other craft**

# Object code keeps space watch cheap

▸ *Tracking facility for U.S. uses reusable software components*

*By Sharon Gaudin*

TURNING TO REUSABLE components, a satellite tracking contractor for the U.S. Air Force cut the cost of software for its new automated space surveillance system to $500 from as much as $200,000.

Analysts said more and more users will start to find that reusable components in their arsenals and those of their consultants will save them time

**Object,** page 58

# Panda: Take this software – please!

*By Gordon Mah Ung*

PANDA SOFTWARE is giving away the store in hopes of building up a business in the U.S.

The company, based in Spain and with offices in San Francisco, is offering its products free in a mad dash to enter the U.S. corporate antivirus market.

Customers can use the products free for three months. Panda offers antivirus scanners for

**Panda,** page 58

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# Panda

CONTINUED FROM PAGE 55

DOS, Windows 3.1, Windows 95, Windows NT Workstation, OS/2 and NetWare, plus monthly updates. But wait, there's more. Panda is also pledging to give corporate customers 24-hour, seven-day-per-week telephone support. And Panda said it will create inoculations within 24 hours for viruses users bring to its attention.

Companies that try the package and decide not to pay for support past the 90-day trial can continue to use it anyway. Companies that like the product and want continued support and virus updates must license the product and pay for "antivirus insurance."

**PRICE IS RIGHT**

The cost is competitive with leading products. A license for a company with 50 to 299 seats costs about $35 per PC. The initial license includes service and support for one year. Additional support must be renewed.

Panda officials said the offer is the only way to get into the corporate antivirus market, which is dominated by Symantec Corp. in Cupertino, Calif., and McAfee Associates, Inc. in Santa Clara, Calif.

But sometimes you can't even give your product away.

**COMPARING VIRUS VENDOR SUPPORT**

| | |
|---|---|
| **Panda Software San Francisco** | 24-hour phone support, 365 days per year |
| **McAfee Associates Santa Clara, Calif.** | Phone support 6 a.m. to 6 p.m. PST. With the merger of Network General, McAfee may offer 24-hour, 7-day per week response |
| **Symantec Cupertino, Calif.** | Several levels of support for added cost; Platinum care offers 24-hour, 7-day per week response |

"I would have to say I have a brand-recognition issue here," said Kinloch Dunlap, corporate director of MIS at Gilbert and Bennett Manufacturing, Inc. in Taccoa, Ga. Dunlap, whose company runs both Symantec and McAfee products, said he sees no need to change, especially to an unknown company.

Even the promise of 24-hour phone support isn't very enticing because he rarely finds the need to contact antivirus vendors, Dunlap said.

Earl McKinney, MIS director at Carroll's Foods, Inc. in Warsaw, N.C., which uses McAfee products, said he is wary of placing the security of the company in the hands of an unknown company. "If it's for free, there's got to be something wrong with it," he said. McKinney also said he prefers support on the Internet to direct phone support.

Panda officials point to their certification from the National Computer Security Association and the U.K.-based Checkmark rating as proof they have a quality product.

Panda's intention, they said, is simply to force an opening in the market and become third or fourth in market share within two years.

Ted Julian, an Internet analyst at International Data Corp. in Framingham, Mass., said Panda faces an uphill battle.

Panda may have a chance, considering the growth in server antivirus products. Julian said the phone support pledge may also help Panda's public appearance because it says the company will stand behind its products.

But the free phone support pledge could backfire if Panda's growth explodes in the U.S., Julian said. □

# Object tracking

CONTINUED FROM PAGE 55

and money.

Rocketdyne Technical Services, which operates and maintains a Maui space surveillance system for the U.S. Air Force, needed software to run a new remote-control telescope and sensor system that tracks satellites and astronomical objects such as asteroids and comets. And because defense spending is no longer astronomical, Rocketdyne needed to do it within a tight budget.

The only way to do that was to develop the program that runs the entire system with prebuilt, reusable chunks of software instead of developing customized applications, said Daron Nishimoto, a staff physicist at Rocketdyne.

Nishimoto said the consultant who promised to put together the software with prebuilt components was the find of a lifetime.

"The defense budget is constantly getting cut now, so the Air Force, which funds us, is looking for ways to do projects cheaper," said Nishimoto, who operates the new system, called Raven. "I've never seen a system that had so much capability using software off the shelf. This is really high-grade, low-cost. I've never seen anything like it."

He added that the entire project, including hardware and other equipment, cost less than $80,000.

Rocketdyne built the remote tracking system, a portable network of automated telescopes, to augment its permanent facility in Maui. Raven is a network of portable, automated telescopes. The software controls the dome, telescopes, camera and sensors. It also lets Nishimoto operate the telescopes remotely over the Internet.

Nishimoto, who will be the physicist using the new system, said Raven needs to run continuously, giving the Air Force and NASA up-to-date locations on all 8,000 satellites and celestial bodies they track. The information is used to ensure that the space shuttle, the space station and new satellites don't crash into anything in their orbit.

**SOUNDS CRAZY**

"I put the project out to bid, and most bids came in around $150,000, and one was up to $200,000," Nishimoto said. "Software Bisque came in at $500, with updates at $99. I said, 'You're crazy, but I'll take it.'"

Matt Bisque, one of the co-owners of Software Bisque, Inc. in Golden, Colo., said he could do the project so inexpensively because he simply had to stitch together prebuilt components. Software Bisque builds tracking software for amateur astronomers.

"They wanted it automated and to work remotely. I had already built ActiveX components that I was able to drop into applications to do that," said Bisque, who runs the company with his three brothers — two of the group are developers and two are astronomers. "We had already done the work — about 10 man-years of work — so we didn't have to do it again. I can't imagine doing the project starting from scratch."

Karen Boucher, director of The Standish Group International, Inc. in Dennis, Mass., said component reuse is on the rise after catching hold only a year ago. "This is an extreme example, but it does show how you can save money and time building applications through components," she said. She added that users can generally save one-half to two-thirds the cost of developing from scratch. □

# Black & Decker

CONTINUED FROM PAGE 55

"Our customers wanted consistent, reliable on-time delivery," said Mark Dailey, vice president of supply chain operations at the division.

"We had no single point of contact for customers," he added. "When a customer called with a question, often we had to call them back with the information they wanted."

With the new system, order information will be easily accessible to Black & Decker employees so they can answer a customer's questions on the spot.

Analyst Jack Maynard at Aberdeen Group, Inc. in Boston said Black & Decker suffers from ailments that plague many manufacturing companies.

"Because Black & Decker is an old firm, it has all of the problems of a successful company accumulating procedures over time that just don't keep up with the times," Maynard said. "This is very true in manufacturing organizations, more than others."

In fact, Black & Decker's problems didn't stop at customer information. Dailey said the company often would send the "wrong product to the wrong location" because it wasn't properly managing orders or inventory.

The toolmaker also wasn't planning well for seasonal spikes in sales. It often found itself with excess inventory at the end of the busy Christmas and outdoor seasons. It also was slow to react to any buying changes so that, for example, if a particular power saw wasn't selling well, the manufacturing plant took longer than it should have to slow production of the model.

But those problems are being addressed with a complete revamp of the company's business processes and new software to manage them (see chart).

At one site already live on Manugistics, a Black & Decker planner who used to take two and a half days to forecast sales and calculate production levels for the outdoor season does the same job in 20 minutes.

"We are now starting to react much more quickly than ever before," Dailey said. "We have to drive forecast errors down. The information is there; we were just not simulating and accumulating it well. Now we have the tools to do that."

About 70 people are dedicated to the project full time. Dailey said they are an equal mix of functional businesspeople, information systems technical staffers and consultants. In fact, consulting is one of the major costs of the project.

Dailey would not disclose the budget for the project, but he said Black & Decker is spending about $3 to $5 on consulting services for every $1 spent on software licenses. Most of the consultants are from Ernst & Young LLP and the vendors, he said. □

**Black & Decker is installing several software packages to handle new business processes**

| Vendor | Function |
|---|---|
| **SAP Wayne, Pa.** | Enterprise resource planning |
| **Manugistics Rockville, Md.** | Demand, supply and transportation management |
| **IBM Armonk, N.Y.** | Product data management |
| **McHugh Waukesha, Wis.** | Distribution and warehouse management |

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# Informix: Simplify

CONTINUED FROM PAGE 55

price was too steep before, she added.

Universal Server had cost $2,500 per user, but now its object features are a $300-per-user option to Informix's core relational technology, which is still $1,500 per user.

Several multimedia plug-in modules that were part of Universal Server but not needed by all users have been unbundled. Each will now be sold separately for between $200 and $500 per user.

Informix's flagship Online Dynamic Server database was renamed and is now simply called Dynamic Server.

Informix is also splitting its OnLine XPS parallel database into a pair of add-on options that together cost $800 per user less than XPS did. Also being packaged as options are its workgroup database, MetaCube data analysis server and World Wide Web connectivity software.

Maribeth Anderson, manager of technology at First Chicago Mercantile Services LLC, said the lower price for Universal Server "makes the point of entry a little bit easier to take" for users who don't need the multimedia capabilities.

First Chicago uses OnLine Dynamic Server to run a tax payment processing application for the Internal Revenue Service.

But it has been looking at Universal Server for a proposed decision-support application that would involve heavy-duty analysis of economic data, Anderson said.

The repackaging is part of Informix's effort to increase sales and recover from its ongoing financial debacle. The plan was announced just after the company reported a $111 million third-quarter deficit and a financial restatement stretching back to 1994 [CW, Nov. 24].

But not everyone was wowed by the repackaging. "I can see why they want to simplify things, but it doesn't really give us anything that benefits us yet," said John Valente, senior vice president of the information applications division at Visa International, Inc. in San Francisco. Valente said that what he really wants to see is prompt delivery of some promised new features, such as higher-speed data replication that could help Visa distribute information about member credit-card companies to its regional offices. □


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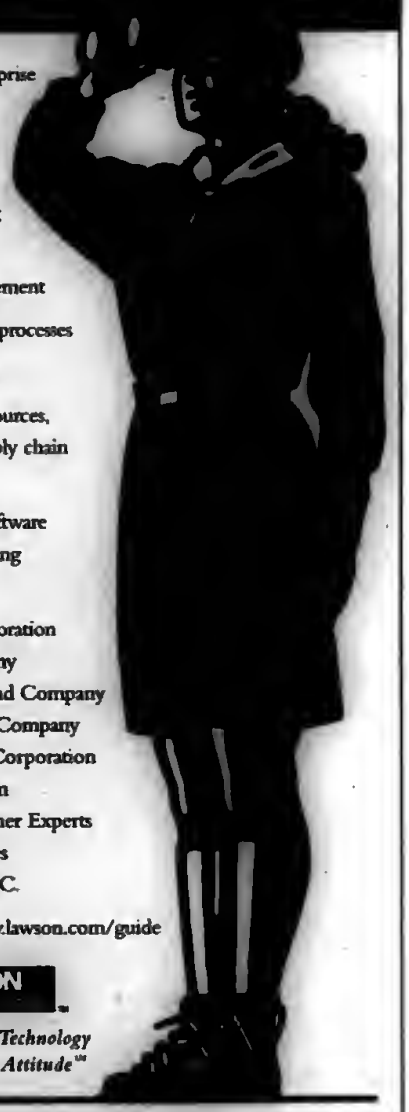

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# Getting Informix back on the offensive

*Informix has taken one financial blow after another during the past seven months. Now the company needs to go back on the offensive, says CEO Robert Finocchio, who was interviewed last month by* Computerworld *Editor Paul Gillin and Senior Editor Craig Stedman*

**CW: Is there more cost-cutting in your future?**

**ROBERT FINOCCHIO:** No. Our strategy now is to grow the company, to play offense rather than defense. This is not a time for us to go into a retreat. I don't want to turn our company into a wasting asset.

**CW: Can you still afford to develop all of your products?**

**RF:** We chose our current expense level so we would be able to maintain our development investments. We haven't changed the product plan since I came to the company [in July]. I adjusted a few knobs and changed our focus a bit, but basically, we're staying with the same product architecture we had.

**CW: Do you expect better results in the next six months?**

**RF:** My focus is on gaining traction. Certainly, in the third quarter, customers put buying decisions on hold because of all the uncertainty we were operating under. Now a lot of that uncertainty is gone, and we're hopeful that we can start closing some business. But it's impossible for me to predict how quickly [Informix can turn around].

**CW: Do you still believe in Universal Server?**

**RF:** I think we tied too much of the company's image to that one product, and we probably overemphasized the multimedia aspect of it. But I remain very bullish about the prospects for that technology. And it's not just whizzy multimedia. It's for real bread-and-butter uses.

CINDY CHARLES

"My focus is on gaining traction"

**CW: Your sales force has gone through a lot of changes. How long will it take to get that back on its feet?**

**RF:** I initiated most of the changes in the sales organization, and if you look at the [financial] restatement we did, you can see why. We needed a new kind of leadership. But I think the sales force is on its feet in 90% of the world. One area where we do need a lot of work is in channel development.

**CW: Can Informix survive on its own, or do you expect to look for a buyer?**

**RF:** What we need to do is the same under any circumstance: We need to fix things, get profitable and grow. I think we have a lot of value as an independent company. But the only thing I'll say is that my goal is to maximize the value of the firm. □

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# Servers & PCs

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## Briefs

GETTING SMART

400 million*

170 million

# NT joins storage mix

*▸ NT disk array demand to pass Unix*

*By Tim Ouellette*

USERS ARE TAKING it upon themselves to give Windows NT a stronger backbone

That's because as Windows NT servers start to pop up in the enterprise, data center managers are moving the storage off those servers into central disk arrays. Previously, most Windows NT storage was internal and targeted more at departmental levels.

As a result, the rise in demand for external disk arrays dedicated to hosting Windows NT data is outstripping all other platforms on the market (see chart).

At Bell Atlantic Mobile in Morristown, N.J., Windows NT servers have taken on a prominent role in the cellular company's application environment. But big-iron sensibility led Ernie Miragliotta, regional director of information systems, to buy an EMC Corp. Symmetrix 3200 disk array to house all that data.

"I came from the mainframe background. I've tried to replicate it as much as we could" because NT servers still lack features such as monitoring and tape library management, he said.

The growth in dependence on numerous NT servers mirrors the company's 30% to 40% annual growth in business.

"We need to keep up with that on the storage side, and it is hard to do when you limit yourself to a server with disk drives in it," Miragliotta said.

The 18 Windows NT servers spread across the enterprise manage a critical customer service application, database applications, electronic mail and file-and-print services for 1,500 employees.

Similarly, Union Bank Corp. in Charlotte, N.C., has turned

NT, page 64

**NT TO THE ENTERPRISE**

Estimated 1997 external disk subsystem revenue and growth rates

| Platform | Revenue | Growth |
|---|---|---|
| S/390 | $3.6B | -8% |
| Unix | $6.3B | 35% |
| NetWare | $2.4B | 61% |
| Windows NT | $1.8B | 121% |

Source: International Data Corp., Framingham, Mass.

# Iomega removable disk drive soups up storage

*By Nancy Dillon*

SOME USERS SAY new features that give handheld computers more of the functionality of laptops are welcome. But others say handhelds and laptop computers serve different purposes and loading handhelds with PC applications and peripherals doesn't serve their needs.

Iomega Corp. in Roy, Utah, is targeting the first group with its Clik removable disk drive and 40M-byte removable Clik cartridges.

**"40M bytes on one disk might not be enough."**
**– Tiernan Ray, Technologic Partners**

The disk drive was designed to increase storage capacity for handheld computers, which typically come with 4M or 8M bytes of solid-state storage, digital cameras and other pocket-size products.

The $200 Clik drives are due next summer, and disks will cost $10 each.

Kevin Greenlee, manager of applications development at Hoechst Marion Roussel, Inc., a pharmaceuticals company in Kansas City, Mo., said he likes the idea of more storage for handhelds.

Greenlee in January will roll out to his sales force 1,800 Philips Electronics N.V. Velo handhelds with signature capture capability.

"Our salespeople call on doctors to create demand for our products. If we could get by the limitations of the smaller devices and have them doing PowerPoint sales presentations, too, that would be fantastic," Greenlee said.

John D. Hartman, director of systems technology at Nielsen Media Research, Inc. in Dunedin, Fla., is more skeptical about the promise of souped-up handhelds. He has tested several machines and said their lim-

Iomega, page 64

WINDOWS NT

# Vendors rush to provide Hydra hardware

*By April Jacobs and Kim Girard*
LAS VEGAS

MICROSOFT CORP.'S Hydra, a multiuser version of Windows NT, has been delivered to 1,000 beta testers. And a gaggle of hardware vendors are flocking to supply Windows terminals to run applications for it.

At November's Comdex/Fall '97, vendors demonstrated Windows terminals that were designed to run Windows and non-Windows applications from the server.

Users want manageable desktops, but they want standards, too.

Among the vendors are Boundless Technologies, Inc. in Hauppage, N.Y.; Network Computing Devices, Inc. in Mountain View, Calif.; Tektronix, Inc. in Beaverton, Ore.; Wyse Technology, Inc. in San Jose, Calif.; and Neoware Systems, Inc. in

Hydra, page 64

• Users skip interim updates

# IBM preps OS/390 release

*By Tim Ouellette*

WHILE PC USERS debate the latest Windows upgrade possibilities, mainframe shops can claim that they are on an even faster track.

IBM is prepping Version 2, Release 5 of the OS/390 mainframe operating system for delivery next March. That will make five upgrades since OS/390 first shipped in February 1996 (see chart below).

The new version will deliver better TCP/IP support for System/390 applications; improve support for mainframe clustering; and add more security to

IBM, page 64

**RAPID-FIRE UPDATES**

Time line of OS/390 upgrades

| Version | Feature | Delivery date |
|---|---|---|
| 1.1 | Internet Bonus Pack | February 1996 |
| 1.2 | Full Unix support | Fall 1996 |
| 1.3 | 50 integrated products | March 1997 |
| 2.4 | Java support | September 1997 |
| 2.5 | Rewrite of TCP/IP stack | March 1998 |

# Vendors ready Hydra hardware

CONTINUED FROM PAGE 63

King of Prussia, Pa.

As an extension to Hydra, Citrix Systems, Inc. in Fort Lauderdale, Fla., also will offer Picasso, which features additional functionality, including audio for users of terminals and support for non-Windows-based devices, such as Unix workstations.

Users said they like the idea of manageable desktops but hope hardware makers will focus on standards, especially for peripherals that go with the new desktop machines.

"I don't want to have to worry when I plug something in about whether or not it's going to work," said Tim Cardozo, vice president of the PC Users Group in Sacramento, Calif.

At Comdex, attendees also saw a cornucopia of Windows CE 2.0 handheld computers and prototype hardware products, including those that incorporate Microsoft's Device Bay technology, which allows users to swap things such as hard drives among compliant PCs.

The products on display included the following:

- Philips Electronics N.V.'s Velo 500 handheld PC, equipped with a stripped-down version of the Windows operating system, can be used to synchronize calendar, contacts and to-do lists with a PC. The upgraded model, with the Windows CE 2.0 operating system, features 16M bytes of memory, a 28.8K bit/sec modem, a gray backlit screen and a 15-hour battery life.
- Houston-based Compaq Computer Corp. said it plans to roll out its C-Series in the first quarter of next year, featuring Windows CE 2.0 handhelds with either a color or monochromatic screen and a 33.6K bit/sec. modem.
- The Mobilon handheld, from Sharp Electronics Corp. in Mahwah, N.J., features a color LCD screen, a digital camera card option, an Internet Explorer World Wide Web browser and a built-in 33.6K bit/sec. modem.
- Motorola, Inc.'s two-way pager, PageWriter 2000, features a keyboard and has electronic-mail and fax capabilities. The device, which has 1M byte of flash memory and an optional docking station to connect to a PC or Macintosh, is priced starting at $399. Skytel will offer the pager in January.
- A plug-in Motorola pager card that can be installed in 3Com Corp.'s PalmPilot will be available in March. The card, which will cost between $169 and $195, will increase PalmPilot's memory to 2M bytes and enable users to receive text and numeric messages up to 300 characters with coverage options through PageMart. □

# Iomega ramps up storage

CONTINUED FROM PAGE 63

its keep him from moving his 500 field engineers off laptops.

More storage for bigger applications is a start at closing the features gap, Hartman said.

But 40M-byte disks still sound a little light, he said. "Windows and our database manager alone could chew up 40M bytes, and we would still need to store work orders and job completion reports," Hartman said.

APPLICATIONS STORAGE

**STORAGE NEEDS**

Analysts said that because Microsoft Corp.'s Windows CE system is a new platform, it may be too early to judge just how much storage new Windows CE applications will need.

"If E-mail, Web browsers and Java interpreters on handhelds all pan out, 40M bytes on one disk might not be enough," said Tiernan Ray, an analyst at Technologic Partners in New York.

But, he said, 40M bytes would be adequate for a Windows CE version of PowerPoint and a few presentations, "so it will be useful in transforming a handheld from just an E-mail machine into a multimedia device."

Ray said the Clik drive can't rely on the desktop model of removable storage for market acceptance because backing up information for handhelds onto removable disks doesn't make sense. Users would perform that task on their PCs.

Brian Nickel, manager of integration at Morton Plant Mease Health System, Inc. in Clearwater, Fla., agreed.

"I'm not sure how useful [Clik] will be, because users upload to their PCs on a regular basis," Nickel said.

He said it might be justified for salespeople who travel all the time, but there is a point where the upgrades have to stop.

"If somebody is trying to justify a significant amount of enhancements for their handheld, we're probably going to question them about their requirements and suggest a notebook," Nickel said.

But even if Clik doesn't catch on for handhelds, some corporations will still find room for it, said Crawford Del Prete, an analyst at International Data Corp. in Framingham, Mass.

He said organizations with digital cameras out in the field — insurance and real estate companies, for example — will be able to use Clik to take more high-resolution pictures. □

# IBM preps OS/390

CONTINUED FROM PAGE 63

the system's built-in Internet firewall.

It also will serve as the base code for beta-testing Component Broker, IBM's object middleware package.

Data center managers aren't fazed by the fast pace of releases. Instead, many have decided to skip over interim releases until they need the latest and greatest features.

**JUST SKIP IT**

Meta Group, Inc. in Stamford, Conn., recommends that users skip the latest release, Version 2, Release 4, and wait until Version 5 delivers better TCP/IP support.

"We never expected customers to migrate with each release," said Doug Balog, program director for OS/390. "But we hope they will migrate every year or year and a half."

Users said a consistent upgrade scheme helps them feel comfortable about the mainframe's future and about keeping up with fast Internet and Java technology changes.

"We didn't have a set maintenance and upgrade philosophy before, when we ran MVS," said Bud Dowell, a manager of information technology services at Central Illinois Light Co. But with OS/390, "we would like to upgrade to every other release."

The Peoria, Ill., utility runs OS/390 Version 1, Release 2 on a Multiprise 2000 mainframe system.

Because of business volume, Hewitt Associates, Inc. in Lincolnshire, Ill., hasn't yet moved to Version 2, Release 4.

But "we want to jump right in and do it all if we can. We are trying to exploit all the new functionality in the new releases," said Dan Kaberon, parallel sysplex program manager at the human resources outsourcer.

The reason: OS/390 bundles several products in one package that can be installed at one time. MVS shops previously had to upgrade the operating system then follow with separate installations for the different tools and utilities.

**NO OVERLOAD**

But when Version 2, Release 5 ships, it will include 50 base products and 20 other optional products. Balog said IBM will make sure not to overload users with many more integrated products than that when future releases hit the streets. □

# NT disk array demand to rival Unix

CONTINUED FROM PAGE 63

from mainframe operations to Unix servers and expects to bring as many as 100 Windows NT Servers into use in the next year, said systems engineer Robert Gardner.

But those servers aren't for isolated departments. They will be part of a central storage and tape backup scheme that will ensure that the company secures critical data from branch offices while giving users access to inexpensive server platforms. Analysts agreed that the NT storage business will lead the way in coming years. And vendors such as EMC, in Hopkinton, Mass., have quickly jumped on the bandwagon to offer data centers a better way to manage all that data rather than isolating it in internal disk drives on the server.

In fact, Storage Computer Corp. in Nashua, N.H., next week plans to announce a high-performance NT disk subsystem. The system will tie together storage from several NT servers while maintaining access performance, company officials claimed. □

## NEW PRODUCTS

**SYQUEST TECHNOLOGY, INC.** has announced Quest, a 4.7G-byte removable storage drive.

According to the Fremont, Calif., company, the hard disk drive has a 2M-byte cache buffer, an ultrawide SCSI interface, a maximum data transfer rate of 10.6M byte/sec. and an average seek time of 12 msec.

An internal drive costs $599 and comes with one 4.7G-byte cartridge. Additional cartridges cost $199 each.

**SyQuest Technology**
**(510) 226-4000**
**www.syquest.com**

**INTEGRIX, INC.** has announced the RS2, an UltraSPARC II-powered server in a 19-in. rack-mount chassis.

According to the Newbury Park, Calif., company, the server was designed to fit into existing server banks for use as an electronic-mail, World Wide Web, database or file server.

A model with a single 200-MHz UltraSPARC II processor, 256M bytes RAM, four 64-bit SBus slots and Sun Microsystems, Inc. Solaris 2.x costs $13,500.

**Integrix**
**(805) 376-1000**
**www.integrix.com**

**SEAGATE TECHNOLOGY, INC.** has announced Scorpion 96, a tape storage autoloader that offers up to 96G bytes of backup for network servers and workstations.

According to the Scotts Valley, Calif., company, the hardware is compatible with DDS-1, DDS-2 and DDS-3 tapes.

It costs $2,479.

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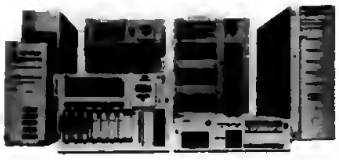

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YEAR 2000

# UPDATES from the FRONT

## So, how's that year 2000 project coming along? With a little more than two years to go, it's a good time to check on its progress. That's what we did with five organizations

By Robert L. Scheier

As the old joke goes, if you think everything's going great, you just aren't looking closely enough. That may be the case with solving the year 2000 computer bug, which makes it impossible for systems to tell the difference between the 20th and 21st centuries.

A check of five organizations finds four of them on or ahead of schedule.

But those organizations are just beginning to check the status of their business partners, software vendors or even local power companies. In the case of the Social Security Administration, for example, problems with outside data could derail its entire repair effort.

The experiences of the five organizations demonstrate how important it is to have high-level support for year 2000 repairs, to start immediately (if you haven't already) and to give yourself (if you can) more time and money than you think you'll need. And remember, your worst year 2000 problems might be hiding outside your organization.

### Lutheran Brotherhood: Ahead of schedule

Lutheran Brotherhood in March awarded a $9.3 million contract to Computer Horizons Corp. to help it become year 2000-compliant by December of next year. Halfway through the two-year process, "we're ahead of that schedule," says Ed Stang, an assistant vice president at the Minneapolis-based nonprofit insurance and financial services company.

Repairs are complete on his major challenge, a 15 million-line insurance administration system. And he's about a quarter of the way through regression testing, in which the code is tested against data with pre-2000 dates. That ensures that no new errors were introduced while the company was fixing year 2000 flaws.

When that testing ends late next month, Stang plans to begin six months of "compliance testing" using post-2000 dates.

Meanwhile, he's about 40% done renovating other mainframe systems and plans to finish regression testing on those systems and begin compliance testing of them by the middle of next year. Lutheran Brotherhood is starting to examine other areas such as client/server applications, network components such as hubs and routers, and even elevators. So far, those problems look insignificant compared with the "showstopper" problems on the mainframe.

But Stang still hasn't received answers to queries of some software vendors about their year 2000-compliance plans. Following up on those queries is "one of the projects we've just

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LARA JO REGAN

**Beverly Palmberg has found that the year 2000 project at California State University at Northridge is a steeper climb than she thought it would be**

# YEAR2000 UPDATES

CONTINUED FROM PAGE 69

started work on." But even when vendors claim that their products are compliant, he says, he still needs to test them himself.

Stang also is just beginning to examine how well outside agencies such as the post office and electric company will cope.

## Cal State/Northridge: A tough road

When Beverly Palmberg is asked about her year 2000 schedule, she pauses for a long moment, then sighs. "Well, it's slipping a little bit as reality sets in," says Palmberg, director of computing services at California State University at Northridge.

One reality is that she's losing valuable staffers to other employers who can offer higher salaries.

It's also taken longer than expected to rebuild the campus's critical student records system in Oracle Developer/2000, Designer/2000 and Oracle Forms, because the members of her staff "had to learn the [development] tools as they were trying to use them."

As a result, the year 2000-compliant version of the system has been delayed from next June until September — and that will be a first release that she fully expects to be buggy.

"We hope to have [those bugs] all fixed and ready to go before we hit the year 2000," Palmberg says.

That is only her biggest, most dramatic problem. "I've probably got another 25 systems" that must be replaced, repaired or upgraded, Palmberg says.

For example, she's negotiating with SCT Education Systems in Malvern, Pa., over how much the school will have to pay for a year 2000-compliant version of its mainframe financial aid software. SCT's $200,000 asking price "seems very steep to me," she says

That price is relatively high because the school is running an older version of the product that's no longer under maintenance, says Susan LaCour, vice president of software development at SCT.

Customers who have been paying regular maintenance fees, which LaCour wouldn't disclose, would have been upgraded to a year 2000-compliant version at no added cost.

Speaking of money, Palmberg projects that it will cost $2.5 million to make the campus systems compliant, "but I'm not getting that kind of funding. I'm only getting $1.1 million" in the current fiscal year. She's recruiting high-level managers across the campus to lobby the administration for more.

With all those problems, Palmberg admits: "We'll probably be doing just-in-time [testing] on some of these systems right before the deadline."

"I don't think it's any more serious than I thought it was before," she says. "It's just [that] I have no more time to think about it. I have to be doing something."

## Social Security: Looking beyond the walls

The Social Security Administration (SSA) began its work in 1989. Today, more than 80% of its mission-critical code has been repaired, regression-tested and returned to production, says Robert Vaccaro, year 2000 project director.

But now the SSA is coping with a surprise: another 33 million lines of code in systems that are run by individual states but which feed crucial disability insurance data to SSA. If the state systems malfunction, according to an October report from the General Accounting Office, "SSA could face major disruptions in its ability to process initial disability claims" for millions of people.

The SSA is working with the states to go through the same process with their systems, and it expects those also to be repaired and regression-tested by December of next year.

But at that point, both the state and federal systems must be tested together to make sure they can properly share data with one another in a full year 2000 environment.

Finishing that work by the end of 1999 is a greater challenge than the actual repairs, Vaccaro says.

The agency also is stepping up its work on contingency plans in case the repairs or testing can't be done in time, he says.

## Dayton Hudson: Replacement can work

Rather than make its existing systems year 2000-compliant, Dayton Hudson Corp. is replacing them. The strategy is working, says Dan Riley, director of information systems, finance and administration, but only because the retailer got started more than three years ago as part of a wider effort to install common, enhanced systems throughout the company.

A year ago, Dayton Hudson was finishing work on its Target stores' systems.

Today, "we are substantially complete with our year 2000 compliance efforts" on those systems, Riley says.

Dayton Hudson began expanding date fields in the Target systems as part of a plan to expand store numbers from three digits to four to accommodate Target's expansion to more than 1,000 stores.

Year 2000 compliance for the Dayton Hudson and Mervyn's stores will come as the renovated systems are introduced in those divisions, Riley says. "We've really made a conscious decision [to] use our resources to replace, rather than to remediate," software, he says, especially because the retailer wanted to install common systems anyway to cut costs.

But it won't be until those other systems are installed, expected at the end of next year, that Dayton Hudson will be able to do year 2000 testing of its fully integrated environment.

At the same time, Riley says, "We're doing an inventory of all of our IS and non-IS hardware and software" down to conveyor belts and elevators. Although his team has found year 2000 problems that posed threats, "We've been finding it in plenty of time" to fix them as part of his regular equipment replacement programs, he says.

That holds true for year 2000 dependencies in the firm's LAN/WAN infrastructure, Riley says. Given "the rapid replacement schedule we're on, we don't foresee any massive replacement of equipment that isn't going to be obsoleted anyway," he says. Suppliers, distributors and other business partners shouldn't be too much of a problem, he says.

## Reader's Digest: 'It wasn't that bad'

Chief Information Officer David Starr at the Reader's Digest Association, Inc., in Pleasantville, N.Y., raised some eyebrows in July when he called the year 2000 problem a fraud, arguing that most development organizations could easily fix their millennium bugs.

As of last month, he's even more sure he's right.

"Our inventory and assessment is complete," Starr says. "It's turned out to be a lot less expensive than we expected. We had heard all the horror stories about how difficult and insidious these problems are to fix, and they're all pretty straightforward."

Compared with other companies, Reader's Digest has a relatively small portfolio of about 8 million lines of code within the U.S. and an estimated 10 million worldwide, as well as 100T bytes of customer data just in the U.S.

Based on Starr's work with some of the most critical systems, such as inventory and subscription systems that process dates several years into the future, "on a 1-to-10 scale of difficulty of program bugs, this is a 3," he says. "Everything will be done by January 1999," which means repaired, tested and reintegrated into production.

Starr is confident his customers and suppliers will fix their systems quickly enough that it won't hurt Reader's Digest, because they're already getting pressure from their other customers to make the fixes.

The federal government is the only major IS organization that may not get done in time, Starr says, "because their systems are so old."

### When the date hits . . .

Starr says he's confident there'll be no doomsday effects because of year 2000 bugs. Unlike some other IS managers, he "absolutely" would trust airplane and air traffic control computers enough to fly on Dec. 31, 1999. "The ATMs will not start shooting out money, and the electricity will not stop," he scoffed. "That's nonsense."

But contrast Starr's view with that of KLM Royal Dutch Airlines. KLM announced last month that it may ground its aircraft or refuse to fly certain routes if year 2000 problems pose a safety threat in aircraft or in flight-control systems.

That's why it's critical to check out not only your own systems, but also those of other organization on whom you rely. □

*Scheier is Computerworld's senior editor, management.*

Will you be a crash test dummy for Y2K mass change?

VIASOFT

# YEAR 2000 SCOREBOARD

An occasional series on year 2000 trends, issues and statistics

## NEED AN OUTSOURCER? START YOUR OWN

Like many companies, Phoenix Home Life Mutual Insurance Co. saw the year 2000 skills shortage coming two years ago. Like many companies, it considered outsourcing some of the work to Indian programmers.

But when he looked at the Indian outsourcers, 20-year company veteran Satish Bangalore decided the insurance company could do just as well forming its own Indian software company. Not only could the Indian firm handle part of Phoenix's year 2000 work, but it could take on other maintenance work after the turn of the century and turn a profit doing work for other companies.

Today, the wholly owned subsidiary, PHL Software Services Ltd. in Bangalore, India, employs 60. And it paid back its $1 million in start-up costs this summer, 13 months after its founding, says Ed Hourihan, senior vice president of information services. But that's just for starters: Within three to five years, the parent company expects to grow the subsidiary (of which Bangalore is now CEO) into a 300- to 500-person operation and take it public in India.

The ultimate payoff will come if India, as is expected, opens its vast market to U.S. insurers sometime in the next 10 years. PHL Software Services will fund the parent firm's entry into the Indian market and give it local experience, Hourihan says. And if its Indian insurance business goes bust, the thinking goes, Phoenix Home Life still will have a profitable software company. — Robert L. Scheier

## KEEP THOSE LETTERS COMING

One of the most tiresome — and frustrating — jobs in a year 2000 repair effort is sending out hundreds of letters to your vendors asking if their software and hardware is year 2000-compliant.

Many suppliers don't bother to reply, and those that do often don't know whether their products can properly handle dates beyond the turn of the century, say year 2000 managers. It's not surprising that some companies are cutting back or even ditching their year 2000 letter-writing campaigns.

While acknowledging such problems, Gartner Group, Inc. Research Director Matt Hotle tells his clients to keep up the letters. In case of future litigation, such letters "form a documentable paper trail" showing that the customer tried to ensure the IT products on which it relies were ready for the year 2000. Such letters also provide a wake-up call to vendors, pressing them to get moving on year 2000 work.

But written assurances aren't enough for the hardware or software which is most critical to your business. To get the scoop on those, Hotle says, visit the vendor, "look in the eyes of those developers that are doing the work and get a good case of the warm fuzzies that they are indeed going to finish."

He advises asking the following questions:

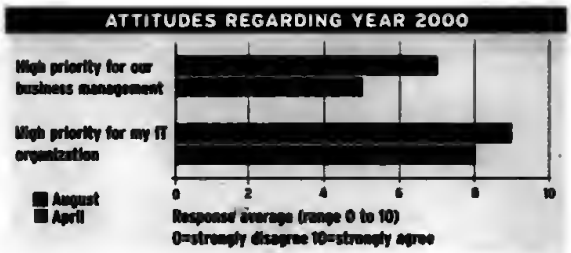
- Is your product compliant?
- If you don't know, when will you know?
- If it is compliant, how have you verified that?
- Can you share with me your compliance criteria, test plans and test results?
- What are the things I need to test to make sure your product will work?

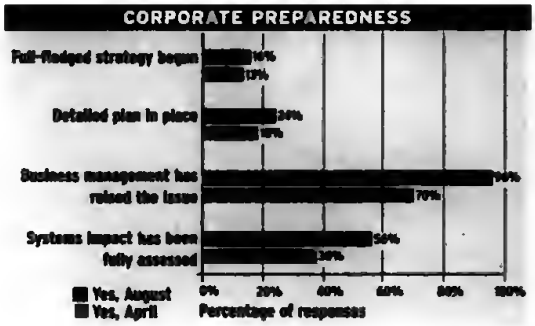
And finally, Hotle says, customers still need to do their own tests in their own environments. — Robert L. Scheier

## CHANGES IN ATTITUDES

With the sun setting on 1997, corporate awareness about the year 2000 problem has grown during the year, according to a poll of Fortune 500 companies released in October by Cap Gemini America, a New York-based year 2000 service provider. But fewer than one in five companies surveyed has a full-fledged repair plan under way.

Cap Gemini raised the following two issues in April, then again in August:




## DON'T LET 'EM GO!

The IS labor market may be highly competitive, but with year 2000 work expected to ramp up next year — especially for vendors — you should make every attempt to keep your key people.

That's the advice from Meta Group, Inc. after it looked at the results of a recent survey of year 2000 vendors conducted by the Information Technology Association of America (ITAA).

Meta Group, an information systems consultancy in Stamford, Conn., is urging clients to use pay and incentive schemes to keep IS personnel from defecting to year 2000 vendors.

The ITAA survey of 98 vendors found that 82% of them believe that having enough people to handle their work is a serious issue.

## HELP THY COMPETITOR

If you're a bank, it doesn't do much good to make your systems year 2000-compliant if a rival bank across the street can't process your checks.

If you're a state government, it won't help to keep your tax collection systems working if the tax payment system at a local factory is down.

That's the reason some organizations that are in good shape with their year 2000 repairs are helping others, even their competitors, by sharing their secrets.

The Canadian Imperial Bank of Commerce in Toronto, for example, regularly hosts other, less-prepared companies to show them the extensive processes the bank has set up to fix its own systems, and it sends its year 2000 executives on the road to talk up the lessons it's learned.

Year 2000 managers for the Commonwealth of Pennsylvania are also pushing their efforts across organizational borders. Matthew Carey, manager of the state's year 2000 initiative, doesn't have direct responsibility for utilities.

But his group has taken it on itself to contact telephone and electric companies to assess their year 2000 readiness and will brief the legislature this month on its findings.

Carey hopes that concerned lawmakers will pressure the Public Utility Commission to, in turn, pressure utilities to move more quickly. And he says, "We've developed an outreach program" to brief local governments, small businesses and the public on what state government is doing about the year 2000.

The state year 2000 office may also extend the contracts it's signed with service providers to allow cities, towns and boroughs to also get help from those vendors. — Robert L. Scheier

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# TAKING A TEAM APPROACH TO FILLING OPEN JOBS

LEILANI ALLEN

## How do you go about making effective, yet efficient, hiring decisions?

One IS director has found that group interviews save time, improve decisions and get management involved. An employee who went through the process agrees.

John Regep is senior director of IS development at an expanding Midwest firm that processes prescription drug claims for insurance companies and other clients. He's been in information systems for 10 years.

Regep is looking to hire as many people as he can in today's tough labor market. All the more reason the hiring process has to be both efficient and intensive.

Originally, he did almost all the hiring, then assigned the employees to teams. But his managers asked for more input into the process.

"I started group interviews to make my team of managers all feel they were part of the hiring decision." So now, candidates typically go through an initial screening by Regep or a human resources representative, with the focus being an introduction to the company. If a screening is successful, Regep calls on three potential hiring managers to help him conduct a group interview.

### Focus on fundamentals

The interview usually takes an hour, with managers taking turns. There's no standard list of questions, nor do they agree in advance who will cover which topics. The group rarely asks technical questions but focuses instead on fundamental work habits, such as handling multiple priorities, resolving conflicts, development life cycle and communication skills. Not only does the group try to determine how good a fit the candidate is, but also whether the firm's work environment is a fit for what the candidate is seeking. Asking, for example, "What would be your ideal job?" establishes a candidate's level of interest and key requirements.

Immediately after the interview, the managers discuss whether the candidate should be hired and which team she or he should go to. Regep says, "We all get a feel for the types of questions each of us asks and the type of response we're looking for. This way, if one of us can't make it, we are all still able to decide which team the candidate should be offered to. We have even allowed the candidate to make their own decision."

"There are benefits to both sides in the group interview approach," Regep says. "The candidate doesn't waste a lot of time on multiple interviews where the same question gets asked numerous times. From our side, we get to hear all the answers to all questions. And inevitably, someone asks something the rest may have forgotten. It makes for a more well-rounded exchange."

There are, of course, risks associated with this approach. Candidates are likely to find group interviews intimidating, as they try to "psych out" not just one, but four decision-makers. Regep tries to diminish the tension by projecting an informal demeanor and casual dress.

### Just like 'real life'

And what about the added stress for the candidate at being so outnumbered? "The group situation mirrors real life," Regep says. "There will be many occasions where a developer must meet with numerous users and should be able to handle the situation."

The results so far: Of 40 openings in the past year, Regep has filled 25. There are an average of two group interviews per week, meaning that approximately a fourth of the candidates are hired, which he considers a satisfactory ratio.

How do the candidates themselves react? Nancy Toth is team leader for a group of eight programmers responsible for the production reporting system. She contacted the firm's human resources department because she had heard the firm was expanding and using innovative techniques. She had a brief interview with Regep and then a group interview with the director and three managers.

She endorses the technique. "I thought it was one of the best interviews I ever had," she says. "What I liked best is that you see more than one person, so you get a better idea of the company and the type of individuals they employ. The personalities of the managers really came across. I felt camaraderie amongst the managers, I could tell they worked well together, had a good rapport. It appeared they had common goals."

And since then? "My first impression of those three managers still holds today," Toth says.

She says she found the pressure normal for an interview, but found "I had to be a little bit more on my toes because I was trying to see how all three would react."

One of the hallmarks of the new management style is an emphasis on collaboration — bringing multiple talents and viewpoints together. Usually that's applied to what we'll do. In this instance, it's who we'll work with. Add an employee representative, and group interviews may well be a technique that improves quality without adding time or cost. □

*Allen's column deals with people issues that managers face every day but are reluctant to discuss openly. She is a director at Tenex, a management consulting firm in Burlington, Mass.*

# f.y.i.

## Big savings from paper?

"Cut operating costs," the chief information officer orders his network administrators, "and leave no stone unturned."

So they look at the usual resource grabbers, such as unnecessary hardware and software upgrades and use of unauthorized software, then return with a list of recommendations.

But does anyone bring up reducing the cost of using printers, copiers and fax machines? Ten percent to 15% of your network nodes are probably printers, IS manager Brian Jaffe said in a *Computerworld* article [CW, Nov. 17] on cutting total cost of ownership.

And printers that are shared by several users require more IS support than locally attached devices.

Dave Plevniak, director of information technology and network operations at Metrohealth, a health care provider in Cleveland that has 4,600 employees, tracked the costs of generating paper copies with the help of some technology from Hewlett-Packard Co.

Plevniak found that Metrohealth could save about $1.2 million per year through workflow changes and technology upgrades.

Based on a sample department, he says, the changes and upgrades will pay for themselves within a year and a half.

The changes range from major, such as upgrading to printers and copiers that are more efficient in using supplies and power, to minor, such as printing 25 original copies rather than printing one off a PC and making 25 copies.

"It's not just intuitively better," Plevniak says, "it saves money." — Rick Saia

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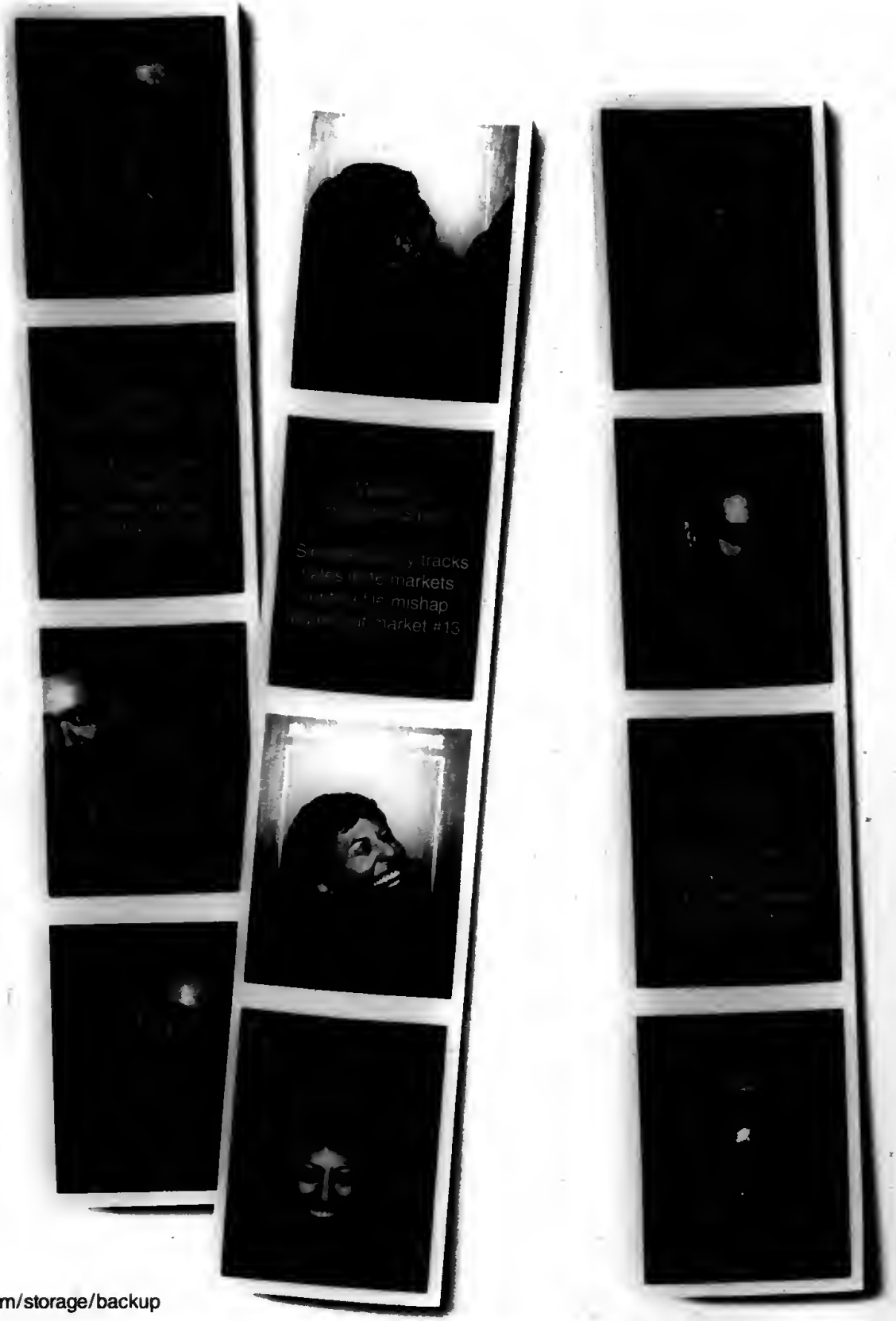


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(c) OS/2 (g) Windows
(d) Unix (h) NeXTStep

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Networking Products ❑ Yes ❑ No

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Buyer's Guide

# PowerBuilder 6.0 edges toward WEB

*By Howard Millman*

**PowerBuilder wants to get thin. With the release of PowerBuilder Enterprise for Windows 6.0, Sybase, Inc. has started, but hasn't completed, transforming PowerBuilder from a client/server development environment into one that fully supports building World Wide Web-ready applications.**

I tested a late beta of PowerBuilder Enterprise for Windows 6.0, a fourth-generation language rapid application development environment due for general release this week. It provides comparatively few, yet welcome, improvements, including support for developing on Hewlett-Packard Co. HP-UX and IBM AIX platforms, enhancements in distributed development capabilities designed to facilitate the creation of multitier applications for use on intranets and the Internet, a dramatically improved debugger and open component creation.

Not evident, at least not yet, is the rest of PowerBuilder's transformation from its roots as a client/server-only powerhouse to a thin-client development environment. Sybase promises to deliver that functionality, which includes support for ActiveX, Common Object Request Broker Architecture, Component Object Model and JavaBeans, early next year. PowerBuilder 6.0 currently supports dynamically generated Hypertext Markup Language (HTML), which can help generate client-side, thin-Web applets.

Still, even in its current form, this is a muscular development environment that can readily compete with Borland International, Inc.'s Delphi and Microsoft Corp.'s Visual Basic and Visual C++ for building enterprise-class applications. PowerBuilder 6.0 lets users build component-based, scalable, multitier applications for 32-bit Windows and Unix architectures. PowerBuilder simplifies initial development and subsequent application management and boosts performance through its built-in Jaguar component transaction server (CTS) architecture. Jaguar partitions applications into three pieces: client-side applets (presentation), server-side components (logic) and back-end databases (data storage). Users can build objects using PowerBuilder or C++.

Other enterprise-class technologies new or improved in this upgrade include shared object support and asynchronous request processing. Shared support lets multiple clients share the same object, which reduces the number of database accesses. Asynchronous processing, similar to a delayed write, avoids having clients wait for the server to execute a request when it's processing other transactions. When the server receives the request, it caches it, thereby releasing the client, and processes the request afterward.

**PRODUCT REVIEW**

**▶ PowerBuilder 6.0**
Sybase, Inc. PowerSoft Tools Group
Concord, Mass. (800) 879-2273
www.powersoft.com

OVERALL GRADE: B+

**PROS:** Significantly improved debugger, ability to create multilingual applications, Unix/Macintosh/Win16 cross-platform deployment, performance profiler, asynchronous communications.

**CONS:** Currently lacks support for Java, JavaBeans, ActiveX and CORBA (promised Q1 '98).

**SHIP DATE:** Dec. 1.

**PLATFORMS:** Windows 95, Windows NT, HP-UX, AIX, Solaris and Mac OS.

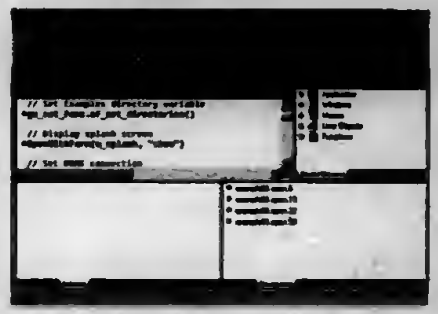
### JUST-IN-TIME

Sybase has significantly improved its debugger. It also has added a performance profiler and revamped its trace function. The new debugger's just-in-time architecture considerably simplifies finding and fixing syntax errors. Previously, the debugger ran as an independent process.

I experimented with the new debugger using deliberately faulty syntax (never a problem for me to generate) in a sort-and-display routine made easier by the new multipane display of simultaneous operational and data processes.

Overall, it was much easier to use, more informative and more robust than Version 5.0's comparatively underpowered debugger. It delivers enhanced support for conditional breakpoints, examining objects in memory, watchpoints and code stepping. Developers can use its built-in analysis routines and graphs to assess performance or create custom views.

PowerBuilder 6.0's revamped trace function and new application profiler integrate moderately well with each other to capture, then analyze, data, revealing bottlenecks and other resource problems. In combination with the beefier debugger, users can repair snags and optimize the application's performance. Together, the trio provides much-needed insight into the application's behavior, which will improve productivity and reduce frustration.



**A multipane interface in PowerBuilder 6.0's debugger simultaneously shows several processes**

### A STAND-UP STAND-IN

A new Java proxy generator gives a Java client direct access to an application's logic and PowerBuilder 6.0's objects. Proxy provides a method to insert business logic into, thereby assuring flexibility, scalability and reusability. Also, you get the benefits of Java applications (for example, machine independence and the ability to invoke methods directly on distributed PowerBuilder servers) without having to explicitly rewrite Power-

PowerBuilder, page 62

# PowerBuilder 6.0

CONTINUED FROM PAGE 81

Builder objects in Java. For previously distributed objects, proxies save you time by eliminating the need to rewrite and redeploy objects.

When Sybase completes its implementation of ActiveX, downloadable PowerBuilder 6.0 run-time clients will behave like ActiveX components, allowing for distribution across the Internet or intranets and saving distribution time and administration costs. Window ActiveX, essentially an ActiveX wrapper, will provide the transport capability. It will function like a plug-in but has methods associated with it. Window ActiveX can be embedded in any application that supports ActiveX and runs PowerBuilder's virtual machine. Sybase says it will provide a secure-mode version of the wrapper so it can be used in electronic commerce and other private data exchanges.

To further enhance scalability, the Jaguar CTS will host and manage application objects. Benefits include sparing the developer from having to deal with communication, security, thread managing and performance issues when integrating components. The current version of Jaguar runs only on Windows NT 4.0 and SunSoft, Inc. Solaris 2.5.1 and supports just ActiveX and C/C++ server-side components. Users can write client-side applets in Java. I didn't test CTS.

An enhancement to the Data Windows tool allows dynamic translation of an application into HTML (without writing any code) that retains the original format and includes embedding controls via a single method call. For example, you can add a command, a picture-style button object or scroll bar support in print preview or the ability to save data in Excel 5 format.

For multinational companies, PowerBuilder 6.0's NT version provides a Unicode universal character set, which simplifies coding in multiple languages.

### MORE OPEN

PowerBuilder discards its former proprietary source code control interface, which should lead to more flexibility and faster adoption of features offered by third-party vendors. PowerBuilder 6.0 uses a standard version control interface, the PowerBuilder Source Code Control Application Programming Interface, based on the Microsoft common source code control interface specification. In the future, PowerBuilder 6.0 promises to support functions in version control systems that extend beyond those specified by Microsoft.

To help developers learn the improvements, online help details the changes. PowerBuilder 6.0 will come bundled with a new Learning Edition of a third-party object-modeling tool, HOW, from Riverton Software in Cambridge, Mass. □

*Millman operates the Data System Services Group, a vendor-independent consultancy in Croton, N.Y. You can reach him at (914) 271-6883 or hmillman@ibm.net.*

# Web tools bulk up Omnis Studio release

*By David Strom*

Long before Java was a planet orbiting in Sun's universe, Omnis Software, Inc. had made a name for itself in the area of developing cross-platform database applications. Studio 1.1 is the latest result, bulked up with various World Wide Web applications and extending Omnis' solid tradition of client/server database programming.

**You could build a complete Web server out of Studio's objects and wizards**

Studio shows real promise in producing Web sites that serve up dynamic content from databases. It's a completely object-oriented application development environment that comes with tons of objects, methods, property inspectors, debuggers and other tools that are part and parcel of the object world. With some minimal programming, I could assemble an application by dragging and dropping objects in a window and tying together various properties and classes.

Studio is useful if you have fourth-generation language or SQL experience and have more than a basic understanding of object-oriented programming techniques and Web applications. If more than one of these concepts is new to you, you should steer clear of Studio.

**PRODUCT REVIEW**

**▶ Omnis Studio 1.1**
Omnis Software, Inc.
San Bruno, Calif. (650) 829-6000
*www.omnis-software.com*

**PROS:** Powerful, integrated, object-oriented programming environment that integrates Web and database applications and allows you to deploy them across various operating system platforms.

**CONS:** Steep learning curve, lacks tutorials, poorly documented.

**LIST PRICE:** $2,599. Data Access Manager, $1,299. Production Manager, $799.

Studio has long been a cross-platform product. For example, it's relatively easy to move an application developed under Windows NT to Windows 3.x, OS/2 or Macintosh. Of course, to do that, I had to install the Omnis run-time software and copy the library file containing the application to the appropriate machine. But that's much easier than trying to move Java applications across platforms.

Omnis has added some hefty Internet-related applications to those cross-platform roots in its latest version of Studio, which shipped in September. Developers can integrate various Internet-related applications such as Web, file transfer protocol and electronic mail into the standard client/server databases. Indeed, you could build a Web server from scratch using the tools and objects supplied.

But I'm not really sure that's the point of Studio. Instead, I'd recommend using it to integrate your Web and database content or to develop your own client/server applications that have Web and E-mail properties and objects.

### IN REVERSE

While products such as Allaire Corp.'s Cold Fusion and Bluestone Software, Inc.'s Sapphire start with a Web server and add database commands inside Hypertext Markup Language (HTML) pages, Studio works in reverse: It starts with a database (or another series of objects), and builds its own Web server around them. Think about a series of query forms on your Web site that let customers track deliveries using the Federal Express Corp. Web tracking system. Or think of how you could E-mail the results of a database query to customers. Or a way to incorporate ActiveX controls, such as a payment system, into your Web storefront or online catalog.

Those kinds of applications were possible to develop prior to Studio, but they required lots of Java or Open Database Connectivity (ODBC) programming and Common Gateway Interface scripting. Although it's exciting to imagine the possibilities, I'm not sure this will catch on with Web developers heavily steeped in writing static HTML pages.

Studio has tremendous power and flexibility. I could grab all sorts of objects from its component store, a holding area for prebuilt routines such as graphics and data manipulation tools. But the nice thing about Studio is that it also looks around your disk for other objects such as ActiveX controls and JavaBeans. The tricky part is how to integrate those objects and produce applications.

I tested Studio on Windows 95, NT and Macintosh. I found NT to be best for developing applications. (To be fair, my Macintosh is an underpowered 6100/66-MHz PowerMac.) Trying to write code on Studio can be an exercise in patience. That's partly because Omnis was somewhat flaky under Windows 95: It would freeze up at odd times for no apparent reason. I'd recommend at least 64M bytes of RAM and a 200-MHz processor for any serious developer and more if you run an SQL database server on the same machine.

I found three drawbacks to Studio. First, if you haven't used object-oriented development tools, it might not be the best place to start. The manuals are sparse with examples, and it's hard to relate the code fragments with what has to be typed on screen. Also missing is a good tutorial to take you sequentially through building an application. To really learn this program, I'd recommend the five-day Quick Start training class ($2,499) offered by Omnis.

Some of the more important documentation is available only as Adobe Portable Document Format (PDF) files, which I found difficult to use. To Omnis' credit, it has included in Version 1.1 a global index of all these online documents, to make searching easier. And it has a CD filled with sample libraries and applications. Again, trying to match the samples with the code shown in the PDF isn't always obvious.

The second drawback is that you'll probably need more than just the Studio software itself. Omnis also sells a Data Access Manager, which is essential if you're going to develop any database applications. It contains the ODBC and SQL objects you'll need to build connections to your existing data structures. There's also a separate Production Manager module, which is helpful for managing a programming project.

Finally, Studio is more of a backwater than a mainstream intersection. There's a great deal of attention on Java and Java Database Connectivity right now: books, products and an active development community. Studio has none of those.

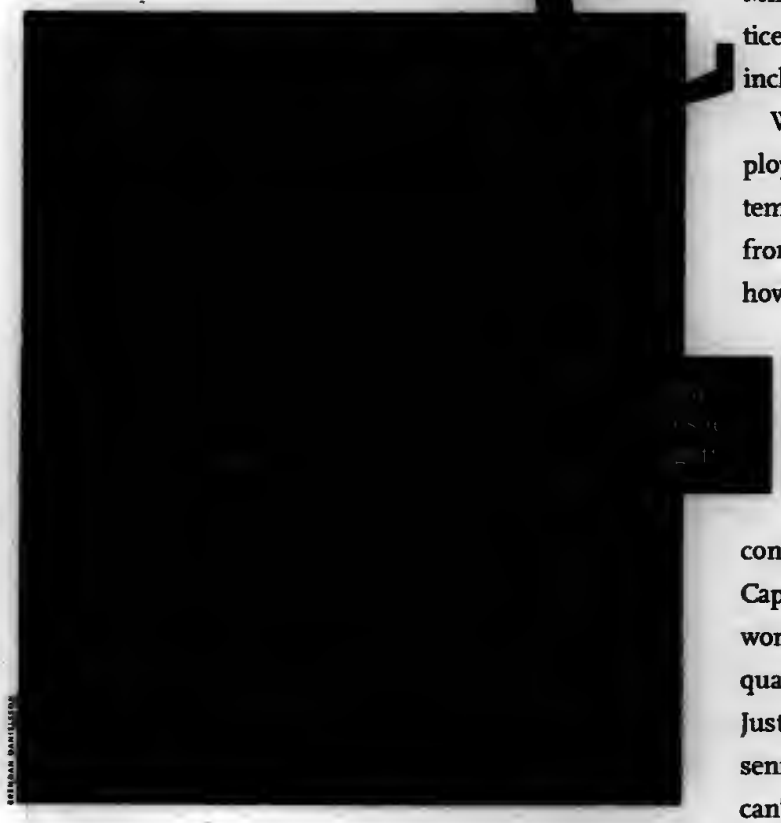
Overall, Studio has lots of promise. It might be a good alternative for Web developers who already have invested significant time with various Java development environments. But steer clear of Studio if you're comfortable using some other Web/database tool or if you have no object-oriented expertise. □

*Strom (david@strom.com) is a reviewer in Port Washington, N.Y.*

In Depth

# NOT playing AROUND

**Some IS departments take users' PC games away, but productivity gains seem limited at best**



COULD JANET RENO'S real problems stem from Minesweeper? Is the Department of Justice's imbroglio with Microsoft revenge for including Solitaire in Windows?

When the Justice Department told employees last year that the information systems department would be removing games from all of its PCs, workers hooted and howled and ranted and raved until they got their way. The IS department relinquished centralized control over games and left it to each Justice division to set its own policy.

Justice was just trying to comply with concerns voiced from certain quarters of Capitol Hill that PC game-playing by federal workers wastes taxpayer dollars. But in most quadrants, the games stayed put. And the Justice Department learned a lesson, says senior systems engineer Elliott Lomax: "You can't discipline attorneys. They're out of

Not playing around, page 84

# NOT playing AROUND

CONTINUED FROM PAGE 83

control." Lomax is with Global Management Systems, Inc., a systems integrator that works on-site at the Justice Department.

**DO POST OFFICE EMPLOYEES PLAY DOOM?**

Removing games from office PCs appears to be a growing trend these days, especially in government, where politicians can ballyhoo about protecting taxpayers from indolent federal workers. (Any productivity gains are questionable, given that most federal agencies have Internet access and games are easily available on the World Wide Web.) But the private sector is jumping into the fray as well. It turns out users may be taking the directories, some as many as 12 deep.

"Their usual response is, 'Games? If I'd known they were there, I would have played them a long time ago,' or, 'Really? Well they must have come on the PC — I didn't do it,' " Drummond says. Whatever the excuse, a first offense earns users a written warning from Drummond's department — and several warnings have been issued. "The policy is quite strict, but management is 100% supportive," Drummond says. "We're a manufacturing company, so we have an environment where people have to be told what is and isn't acceptable."

Supervisors have invoked the policy and requested machine audits when they wanted to discipline employees they consider difficult, Drummond says, and at least one employee has been pink-slipped as a result of the policy. That worker, who allegedly had caused several problems, "locked down" his PC when his boss asked for an audit, an act that was seen as the "final straw." Drummond adds that when his department audited the employee's PC, it uncovered several games and other unauthorized files and packages.

**YOUR TAX DOLLARS AT WORK**

In the public sector, game banning has an illustrious history: In the U.S. Department of Labor, then-Secretary Robert Reich had games removed from employees' PCs in December 1994. Virginia banned all games from state employees' PCs in 1995.

More recently, this summer Sen. Lauch Faircloth (R-N.C.) moved twice to ban games from all federal agency PCs. First, in June he introduced the Responsive Government Act, which included a ban on games among other measures intended to make federal agencies more responsive to telephone calls from taxpayers.

In July, Faircloth introduced an amendment to a Treasury appropriations bill that would both remove games from existing PCs and prohibit the future purchase of computers with games preinstalled.

On the floor and in press statements, Faircloth cited a study that suggested U.S. workers spend an average of 5.1 hours per week playing games and performing other nonwork-related tasks on their computers.

That study, it turns out, was a 1993 survey of 1,000 companies by San Rafael, Calif.-based SBT Corp., a maker of software that monitors user activity. That 4-year-old data from a company with a vested interest in the issue may be less than convincing to some. Calls to SBT for comments weren't returned.

The Government Responsiveness Act failed. The amendment passed the Senate unanimously but was killed in the House, whose members apparently reckoned that whatever productivity losses the government may be suffering thanks to Hearts, the costs of removing the games from thousands of computers, coupled with the costs of buying customized versions of Windows, outweighed any productivity gains.

Nonetheless, Faircloth — who a spokeswoman says uses a computer himself "now and then" — is having games deleted from all PCs in his offices in Washington and North Carolina. He also has called for hearings investigating the impact on taxpayers' wallets of federal agency workers playing computer games.

**'A LEVEL OF TRUST'**

How seriously should IS organizations take this trend? "It comes down to a level of trust in employees," says Kurt Johnson, an analyst at Meta Group, Inc. in Waltham, Mass. "It has a cultural impact if the company is policing user activity on a minute-by-minute basis. IS managers should push activities that will limit problems for the IS organization, but that isn't about making sure people aren't playing Solitaire. . . . If you have users who are playing games all the time, you have bigger problems than just taking games off their machines."

Johnson says the biggest impact games have on IS is at the help desk, and even then, anyone who installs or downloads unauthorized games and then calls the help desk when they create problems "is not the brightest person to begin with." More problematic for the IS department than games, he says, are personal productivity software that overwrites Dynamic Link Libraries or registry files and "push" products such as PointCast, Inc.'s that tie up bandwidth and frequently pull down viruses.

A PC troubleshooter for a fast-food restaurant chain, who asked not to be identified, says screen savers, which tend to cause glitches from conflicts with video drivers, are his major nemesis. He says unauthorized games have caused few problems.

Lomax agrees. He recalls spending several hours diagnosing a failed hard disk at the Justice Department only to finally glean that the user had downloaded an interactive desktop as part of Internet Explorer that had overwritten critical registry files.

Ken Lemons, Global Management Systems' director of business development, says problems related to games have declined significantly. "We're actually seeing a decrease in the playing of games when they're available," Lemons says. "You can only play so much Solitaire." □

*Goff is a freelance writer in New York.*

**"People can look very productive when they're really not doing anything, and it's very difficult for a manager to distinguish." – Craig Drummond, Progressive Tool & Industries**

"personal" in personal computers, too . . . well, personally.

"People think they ought to be able to play games at lunchtime," says Craig Drummond, a certified software manager at Progressive Tool & Industries Co., a maker of automotive and aerospace manufacturing systems in Southfield, Mich. "But if they're doing something at lunch, like playing games or surfing the 'net or writing a letter, when does lunch end and work begin again? They can look very productive when they're really not doing anything, and it's very difficult for a manager to distinguish productive work from unproductive work."

Progressive instituted a stringent policy banning all games from employees' PCs and has even stripped PCs of games bundled with Windows. The policy, which Drummond crafted in the middle of last year, arose from concerns about audits for unlicensed software by the Software Publishers Association but in practice has embraced productivity concerns as well. Under the rules, users get three strikes, and they're out.

But those determined to continue playing games in their spare time have found creative ways to try to thwart the policy, Drummond says.

The company audits PCs remotely with software called NetCensus, from Hanover, N.H.-based Tally Systems Corp., that takes a hardware and software inventory on boot-up and a homegrown monitoring system. When the audits began, Drummond discovered users who had merely transferred the games from their hard disks to floppies. Others had buried the games in AutoCAD drawing sub-

**"If you have users playing games all the time, you have bigger problems than just taking games off their machines." – Kurt Johnson, Meta Group**

IT Careers

# IS NEWBIES: EAGER, MOTIVATED, CLUELESS

BY ROCHELLE GARNER

## They beckon to the inexperienced like seductive lovers.

But instead of tempting the uninitiated with pheromones, these paragons of allure use prestige, sky-high salaries and location to increase their eager coterie.

It's good to be at the top. And when it comes to hiring the cream of IS college graduates, the likes of AT&T Corp., Intel Corp. and Hewlett-Packard Co. can afford to be choosy, selecting only those students with dazzling grades and extracurricular work experience. In effect, these companies are skimming the finest DNA off the IS graduate gene pool.

That leaves the other 90% of the graduating class for the also-rans — you know, Joe Average companies in Anytown, U.S.A., that can't offer the salaries or exciting locale to attract the very best to their information systems organizations. The question for them: Just how good is the vast body of recent IS graduates? The answer, according to the managers who oversee their work, seems to be: "Uh, prrrretty good."

Eager, bright and motivated, most new hires are ready to tackle whatever project comes their way. They also know how to use the latest PC tools — such as spreadsheets, charts and word processors — to give their efforts a professional sheen. But that doesn't mean they enter the workforce equipped to hit their projects at full speed.

More times than not, managers say, workforce neophytes must go back to class. They take courses in the language needed by each company, learn the fundamentals of written communication and, most important, learn how to understand the how's and why's of business strategy.

"We've found that students are bright but don't understand the information systems life cycle, from requirements analysis and design through implementation and total application support," says Tim Persons, senior business consultant at American Greetings Corp. in Cleveland. "They seem to be missing analytical skills, like being able to see the big picture and the consequences of their decisions."

Clearly, Persons is talking about the kind of learning that goes beyond proficiency in C++ or Visual Basic. It's a reservation expressed by managers around the country. They cite the inability of IS newbies to analyze user requirements. Or their difficulty working with programs written by someone else. Or even a need to be told what to do step by step. Add them together, and these complaints come down to one telling issue: Graduates leave college without any sense of business.

"What do people with a computer science degree know about business? Nothing. Yet what sorts of problems are we asking them to solve? Business," says Lynn Melvin, manager of electronic-commerce application development at Michelin North America in Greenville, S.C. "That business foundation is the biggest [knowledge] lack we see."

### IT GOES WHERE?

Think of it as too much concept and not enough hands-on work. The result is that techniques that experienced staff take for granted must be justified to neophytes. The new workers challenge, sometimes to the point of becoming a productivity drain.

"They constantly ask why we do things a certain way," Persons says. "I'm not sure if that means they have a better way or that they're truly inquisitive, or perhaps worse, clueless."

Persons says American Greetings wasn't prepared for that behavioral trait. A corporate policy to find fresh blood prompted a college recruiting effort only last year, after a nine-year hiatus from hiring entry-level staff. Now, the company is learning what a lack of hands-on experience means to its mainframe operations. Basic tasks such as knowing where to find the source code, the library system that manages it, the need to know user requirements up front and the ability to analyze what a system ought to be must all be explained.

"We had to explain something as fundamental as where the program is that they have to change, how to get to it and why it matters," Persons says. "I don't know if college grads have changed or [if] we have been away so long that we forgot what's involved."

What's involved is teaching IS newbies the

IS newbies, page 86

TED BIRD

**"They seem to be missing analytical skills, like being able to see the big picture and the consequences of their decisions."**
**– Tim Persons, senior business consultant, American Greetings**

# IS NEWBIES

CONTINUED FROM PAGE 85

reality of the workplace. One manager, who asked not to be named for fear of embarrassing his new hires, describes the situation with obvious frustration. "Our executive management thinks that techies are supposed to learn customer service straight from college," he says. "But I have two new grads right now who just can't talk to nontechnical people. Those skills are missing."

**Most grads can pick up new languages with relative ease. But there's one language at which college students seem surprisingly ill adept: English.**

That's also the case for the city of Las Cruces, N.M., where new graduates are being placed as network managers. Trouble is, few of them know how to actually manage the systems they're supposed to oversee.

"They lack the ability to plan a stage from point to point," says Manuel Verduzco, director of communications and information systems. As a result, Verduzco puts every new hire through three hours per week of time-management training, in which the worker learns how to analyze and solve problems, and quality management and organizational training.

"Without those management or organizational skills, they fall behind," he says.

What's clearly being defined is an inability of new workers to place themselves and their work in a broader context. How are they supposed to work with large, complex programs if they've worked only with their own? How will they know how their actions cascade throughout a system if they've worked only in isolation?

"When they come here and hit a program they've never seen before that has to be debugged or modified, they're at a loss because they're dealing with totally unfamiliar territory," says Ken Jenkins, programming project manager at Total Systems, Inc. in Columbus, Ga. "There's no substitute for experience."

Forget about checking off what languages students learned in school. The real skill is whether they can apply what they know to the job at hand.

"The language and database skills they learn in school almost don't matter," says Joe Morgan, team leader of client/server development at Hastings Books, Music & Video in Amarillo, Texas. "I would rather they have good programming logic and analysis skills than specific languages."

### WORKPLACE 101

As the law of averages would have it, companies just can't seem to find the skills they need from workers straight out of school. If a company uses Informix Software, Inc. products, it finds only students who've learned Cobol. And if it needs Cobol skills? You guessed it.

That's why most companies have to send entry-level hires back to class to study whatever languages they'll need for their workplace.

Fortunately, most graduates can pick up new languages with relative ease. But there's one language at which college students seem surprisingly ill adept. It's called English.

"Their writing is not so good," says Susan Geller, the senior manager who oversees the college-hire program at MCI Communications Corp. in Colorado Springs. "When they come in, we teach them grammar, business writing and even business writing etiquette."

"We ask candidates to write a short memo explaining why something can't be done right away in a hypothetical situation," Persons says. "We look for whether they can write a paragraph that makes sense and conveys the message."

So, let's review: Today's crop of IS graduates are bright, eager and motivated That's good. But they lack the ability to apply what they know to the real world of business. That's bad.

And they graduate from college not knowing how to string two sentences together. That's appalling.

With today's staffing shortages, most companies are forced to take on the role of educator. And frankly, that's sad. □

*Garner is a freelance writer in San Carlos, Calif.*

## Win some, lose some

**Although recent IS college hires bring enthusiasm and drive to the job, managers bemoan a lack of basic communication skills and practical experience**

**GOOD QUALITIES**

- Eagerness
- Motivation
- Knowledge of database structures and concepts

**SKILLS NEEDED**

- Analysis
- Self-direction
- Business knowledge
- Writing skills
- Hands-on experience
- Planning skills
- Cobol
- Visual Basic
- C++

**IT CAREERS INDEX**

## CONTRACTOR GROWTH

**IS managers project even larger increases in their staffs for next year, compared with last month's hiring forecast, according to Computerworld's survey of 768 IS managers. Much of the growth may come from contractors (temporary staffers). Managers who will hire next year say they expect to increase their department staffs by nearly 4% (up from a previous projection of 2.6%). Meanwhile, the staff mix in corporate IS departments has shown steady growth on the contractor side in the past six months — at the expense of permanent staffers.**

| Hiring plans | Within 3 months | | Within 12 months | |
|---|---|---|---|---|
| | Permanent | Temporary | Permanent | Temporary |
| Change in IS staff | 4.8% | 10.7% | 3.8% | NA |
| Managers increasing staff | 25.5% | 12% | 23.4% | 8.3% |
| Managers decreasing staff | NA | NA | 1.5% | 5.5% |
| Managers maintaining staff levels | NA | NA | 75.1% | 86.2% |
| Current staff mix | Permanent 86.1% | | Temporary 13.9% | |

Base: 768 IS managers NA=Not available

# SAP: SHARING THE WEALTH

## The industry's killer skill still draws a mighty dollar. Now IS staffers are getting in on the game

| | |
|---|---|
| IS consultants & contractors | 39% |
| IS permanent staff | 19% |

| | |
|---|---|
| 1. South Atlantic | 9% |
| 2. West South Central | 8% |
| 3. Pacific | 7% |
| 4. New England | 7% |
| 5. West North Central | 6% |

*By William Spain*

The rush to SAP riches is becoming a more crowded field, as corporate information technology professionals get in on the demand for the industry's most lucrative skill.

For the past two years, SAP has been the skill of choice for a relatively small fraternity of SAP AG consultants. While demand for their services is still strong, those who want to make the big bucks don't have to opt for the consultants' hectic lifestyle anymore. There's plenty of work for the next generation as permanent SAP staffers.

"In the SAP domain, the basic way has been to get a hired gun, and almost all of them work for one of the big consulting companies or installers," says Patricia McGinnis, senior technology analyst at The Tower Group in Newton, Mass.

Those people, she says, have traditionally been very well paid and could take their pick of locations and projects. Of course, when on the job, their hours are long and deadline pressure is often intense.

"However, there is now an increasing shift into what might be called 'saner jobs,' working for regular companies," McGinnis says.

Those opportunities arise in the wake of a successful SAP installation. Companies that turn to SAP have made a large investment in the product and may be unwilling to continue to fork over funds to outsiders.

Instead, they will train in-house talent or hire permanent full-time employees for the relatively less difficult tasks of maintaining and upgrading.

"We are seeing a significant number of installations," McGinnis says. "But the skills set is different running an installed system, and I think [demand for the latter] is also going to increase."

Here is another possible reason, from an information systems manager who asked to remain anonymous: "Companies are also worried about the kind of support they can expect a few years down the line."

Apart from the issues of cost, which are exacerbated by the shortage of qualified consultants, and the large market share held by just a few concerns, "Germany is a long way off," the anonymous IS manager says.

### SUPPLY CATCHING UP WITH DEMAND

Luckily for the demand side, things may be looking up, says one SAP recruiter. "What I have noticed is that while there is still a great demand for SAP skills, it is not as rare a skills set as it used to be," says Sandra Lamar, a technical recruiter at Analysts International Corp in Chicago. "In the next few years, more individuals will be gaining these skills sets, and SAP's competition will inevitably come more up to speed."

Although talented SAP consultants can easily command "anywhere from $60 to $150 an hour," that's a far cry from "a few years ago when I saw kids just out of college making $200,000 a year," Lamar says.

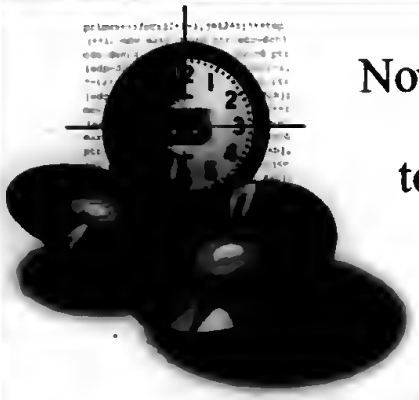
And not only can IS professionals with SAP skills take their pick of projects, locations and whether or not to work full time, but they are also increasingly being given a wider array of industries from which to choose.

Long popular in manufacturing, engineering and transportation, SAP, particularly the R/3 product, is starting to thrive in the financial services industry as well. It's already common in the European banking and insurance industries, and there have been several high-profile installations in the U.S. this year. R/3 has gone live at First Chicago NBD Corp. and Janus Funds. And Allstate Insurance Co. is in the process of a major SAP implementation.

"While it is moving more slowly [than other fields], I believe that SAP has a bright future in financial services," McGinnis says. "By continuing to deliver enhancements to the product, SAP has crossed an important threshold of credibility."

And that credibility should keep SAP skills red-hot for some time to come. □

*Spain is a freelance writer in Chicago.*



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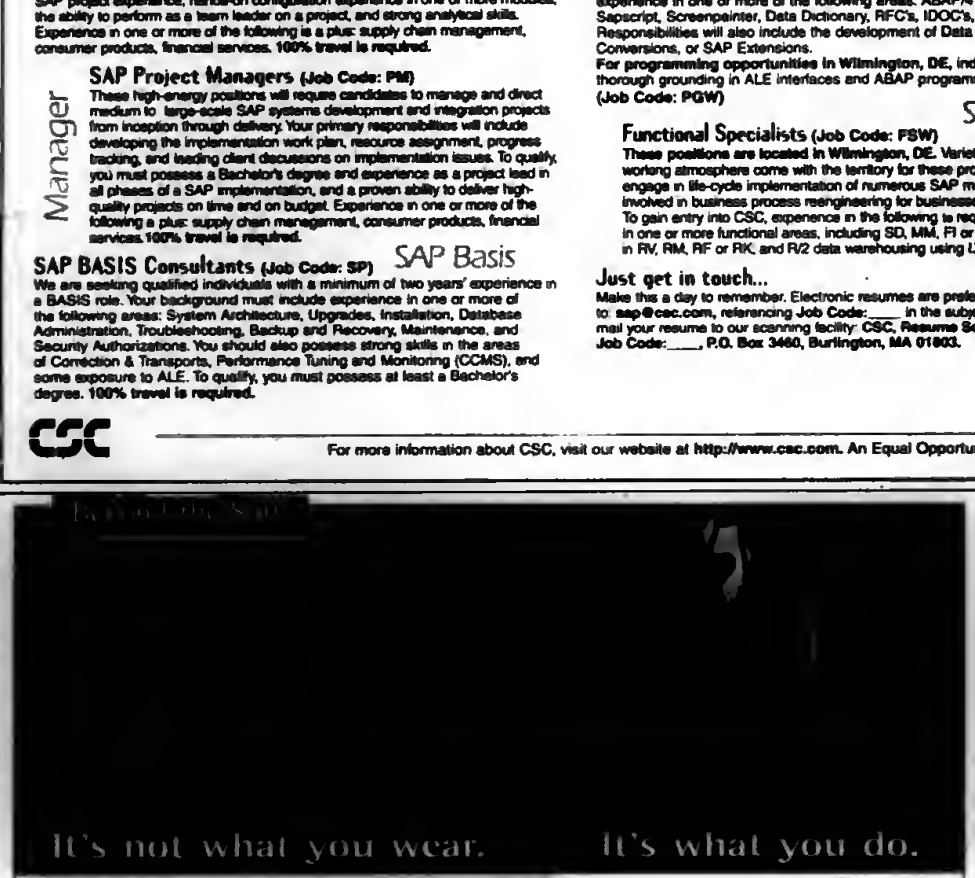


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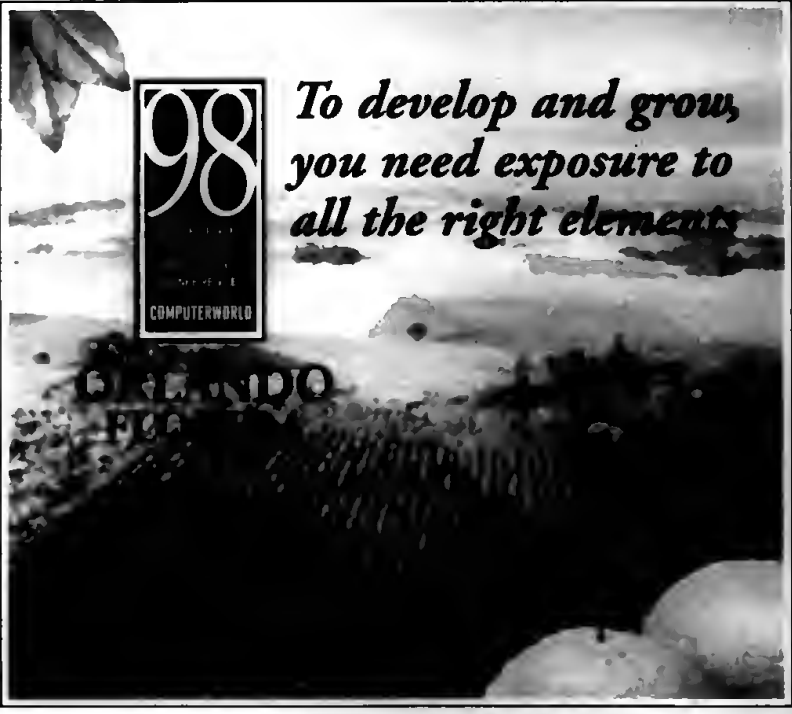

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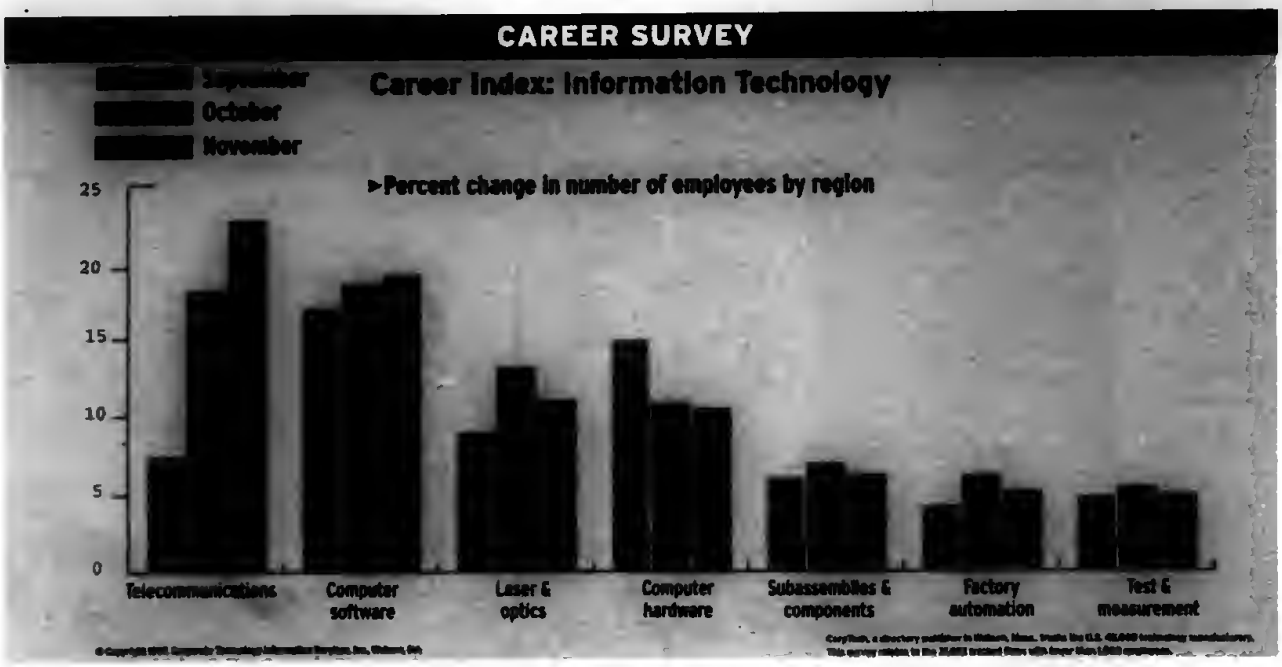

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# The Week in Stocks

## Gainers

PER

| | |
|---|---|
| Inprise Software Inc. | 34.6 |
| Quickstar Software | 82.3 |
| Advanced Micro Devices | 82.6 |
| Xylan Corp. | 7.6 |
| Xylan Corp. | 6.5 |
| Xylan | 5.6 |
| Telecom Eireann | 4.6 |
| Bay Networks Inc. | 4.6 |

DOLLAR

| | |
|---|---|
| Microsoft Corp. | 3.75 |
| IBM | 2.75 |
| Advanced Micro Devices | 2.25 |
| Quickstar Software | 2.25 |
| Digital Corp. Administration | 2.25 |
| Digital Corp. | 1.69 |
| Bell Atlantic Corp. | 1.63 |
| Symantec Corp. | 1.56 |
| Xylan Corp. | 1.44 |

## INDUSTRY ALMANAC

### Intuit's intuition pays off

Quick, name a high-tech company that owned its own market sector a year-and-a-half ago but suffered growing pains and didn't know what to do with the Internet.

That company then spun on its heels and began developing such strong Internet products that analysts are glowing about the firm's long-range prospects.

Guess which company that is — and it isn't Microsoft Corp.

For years, Intuit, Inc. (Nasdaq: INTU) owned the personal finance software market. But the Mountain View, Calif., company began to lose steam, and its growth slowed by the mid-1990s. Microsoft even tried to buy the company in 1994, but the U.S. Department of Justice nixed the deal.

After developing a financial services World Wide Web site (www.Quicken.com), Intuit this past spring bought a 20% stake in Excite, Inc. (Nasdaq: XCIT) and signed a pact with the search engine company to direct online traffic at the expanding site.

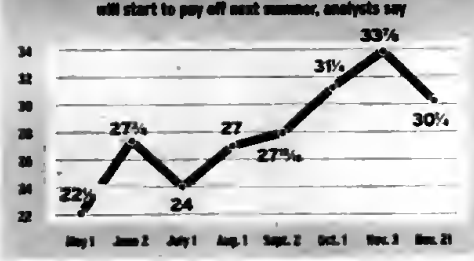
Gerri Combes, an analyst at Hambrecht & Quist, Inc. in San Francisco, says it will take a little longer to build revenue from this site, but it is a solid cornerstone to build upon. "They're the only company building a site with a whole array of multiple consumer needs [from different sources] in one place: investment, insurance, mortgage and tax," Combes says. "They did a fantastic job of stepping in their tracks, recognizing that they needed to be an Internet company and then building it."

Gary Craft, an analyst at BancAmerica Robertson Stephens in New York, writes in a recent report that Intuit's Quicken 98 software also is a key to the company's rebirth. "Intuit is entering the next phase in its business history," Craft writes, "which promises to accelerate growth and push operating leverage much higher than its existing physical business."

Combes says Intuit also will see its revenue climb next summer, when it launches a multiuser version of its QuickBooks small business accounting software. — Stewart Deck

### INTUIT STORMS BACK

Intuit's ongoing transition to the Web has started to show results and will start to pay off next summer, analysts say




| Exch | 52-Week High | 52-Week Low | | Nov 26 Close | Wk Net Change | Wk Pct Change |
|---|---|---|---|---|---|---|
| **COMS** | 61.38 | 29.00 | 3COM Corp | 34.38 | -0.75 | -2.1 |
| **ART** | 78.13 | 54.75 | Ameritech Corp (H) | 75.75 | 1.94 | 2.5 |
| **ASND** | 80.25 | 22.88 | Ascend Communications | 26.81 | -0.97 | -3.8 |
| **T** | 56.88 | 38.75 | AT & T (H) | 38.00 | 0.00 | 0.1 |
| **BNTN** | 9.38 | 1.19 | Bantam Systems Inc | 1.25 | 9.00 | 99 |
| **BAY** | 41.88 | 15.38 | Bay Networks Inc | 30.00 | 1.38 | 4.8 |
| **BEL** | 89.88 | 56.75 | Bell Atlantic Corp | 82.88 | 1.63 | 1.9 |
| **BLS** | 51.63 | 38.75 | BellSouth Corp (H) | 54.88 | 0.00 | 0.0 |
| **BRST** | 39.00 | 9.25 | Broadcast Technology | 11.50 | 1.00 | 8.9 |
| **CS** | 66.50 | 23.69 | Castletron Systems (L) | 23.69 | 2.44 | 9.3 |
| **CGNX** | 11.88 | 8.63 | Centigram Communications | 15.50 | 1.19 | -6.8 |
| **CSCO** | 86.63 | 45.25 | Cisco Systems Inc | 85.06 | -0.38 | 0.4 |
| **CNWK** | 7.00 | 3.31 | Computer Network Tech | 4.00 | -0.44 | 9.9 |
| **DIGI** | 32.72 | 14.88 | DSC Communications | 22.63 | -0.88 | -2.2 |
| **FORE** | 81.88 | 19.00 | FORE Systems Inc | 17.50 | -0.25 | 1.4 |
| **GDC** | 12.38 | 5.25 | General Datacomm Inds (L) | 5.31 | 0.19 | 3.3 |
| **GSX** | 51.88 | 36.13 | General Signal Networks | 44.88 | -0.50 | 1.2 |
| **GTE** | 52.25 | 40.50 | GTE Corp | 49.25 | 0.88 | 1.8 |
| **LU** | 80.75 | 44.75 | Lucent Tech | 61.00 | -0.81 | 1.9 |
| **MMDGF** | 1.811 | 4.56 | Mandoz Networks NV | 5.00 | -0.50 | -9.0 |
| **MCIC** | 43.75 | 27.31 | MCI Communications Corp (H) | 41.50 | 0.19 | 0.4 |
| **NETM** | 8.88 | 2.50 | NetManage Inc | 2.44 | -0.22 | 7.1 |
| **NTKN** | 1.00 | 1.13 | Netrix Corp (L) | 1.31 | -0.25 | 16.0 |
| **NCDI** | 10.25 | 7.00 | Network Computing Devices | 8.31 | -0.00 | -0.1 |
| **NWK** | 22.38 | 11.25 | Network Equipment Tech | 14.50 | 1.00 | -6.5 |
| **NETG** | 30.25 | 11.13 | Network General | 18.75 | 0.88 | -4.5 |
| **NHC** | 69.38 | 26.50 | Newbridge Networks Corp | 42.25 | 5.50 | 7.7 |
| **NT** | 115.88 | 57.75 | Northern Telecom Ltd. | 85.25 | 3.00 | 3.5 |
| **NOVL** | 15.06 | 6.28 | Novell Inc | 9.31 | 0.19 | 2.1 |
| **ODSI** | 19.25 | 9.19 | Optical Data Systems Inc | 8.88 | -0.19 | -2.1 |
| **PCTL** | 11.25 | 7.94 | Picturetel Corp | 9.75 | -0.00 | -0.4 |
| **PTON** | 4.25 | 1.31 | Proteon Inc | 1.63 | -0.00 | 0.1 |
| **RACO** | 0.88 | 1.00 | Racotek Inc | 1.25 | -0.13 | -9.1 |
| **RETB** | 9.25 | 3.38 | Retix | 4.75 | 0.25 | 6.0 |
| **SBC** | 72.63 | 48.50 | SBC Communications (H) | 92.63 | 0.94 | 1.3 |
| **SFA** | 24.94 | 14.25 | Scientific Atlanta Inc | 20.06 | -0.44 | -2.1 |
| **SHVA** | 43.88 | 8.25 | Shiva Corp | 8.94 | -0.00 | 5.9 |
| **FON** | 59.38 | 37.56 | Sprint Corp | 58.69 | 1.69 | 6.0 |
| **SMSC** | 18.11 | 8.25 | Standard Microsystems Corp | 19.63 | -0.00 | -9.5 |
| **USW** | 45.06 | 30.38 | US West Inc (H) | 45.06 | 0.81 | 1.8 |
| **XIRC** | 31.13 | 7.50 | Xircom | 10.56 | -0.00 | -4.5 |
| **XYLN** | 39.13 | 12.38 | Xylan Corp | 28.44 | 1.44 | 7.8 |
| **AAPL** | 29.38 | 12.75 | Apple Computer Inc | 11.63 | -0.56 | 3.1 |
| **CPQ** | 79.56 | 38.50 | Compaq Computer Corp | 65.88 | -3.00 | -4.8 |
| **DELL** | 103.88 | 14.13 | Dell Computer Corp | 55.31 | -0.94 | 1.1 |
| **GTW** | 46.25 | 19.38 | Gateway 2000 Inc | 28.56 | 0.00 | -0.0 |
| **HWP** | 72.94 | 48.13 | Hewlett Packard Co. | 60.75 | -2.00 | 3.2 |
| **MUEI** | 25.38 | 10.25 | Micron International Inc. (L) | 11.06 | -0.25 | -2.2 |
| **NDMY** | 74.88 | 44.91 | NEC America | 52.56 | -3.19 | -5.0 |
| **SGI** | 80.21 | 12.65 | Silicon Graphics | 13.25 | -0.06 | -0.5 |
| **SUNW** | 53.31 | 29.56 | Sun Microsystems Inc | 35.94 | -0.19 | -0.5 |
| **DGN** | 31.94 | 13.63 | Data General Corp | 16.88 | 0.50 | 2.9 |
| **DEC** | 53.81 | 35.00 | Digital Equipment Corp | 40.44 | 1.75 | 3.4 |
| **IBM** | 188.44 | 81.81 | IBM | 108.75 | 2.75 | 2.6 |
| **MDCD** | 7.88 | 3.88 | Microdot Data Inc | 4.13 | -0.25 | 5.7 |
| **PRCM** | 30.13 | 9.00 | ProCom Technology Inc | 19.50 | -1.00 | -4.8 |
| **SQNT** | 31.75 | 14.50 | Sequent Computer Sys | 23.69 | 0.88 | 2.2 |
| **TEXM** | 5.06 | 3.00 | Sequoia Systems Inc | 4.56 | -0.44 | -8.5 |
| **SRA** | 30.75 | 14.75 | Stratus Computer Inc | 32.19 | -0.44 | -1.3 |
| **UIS** | 19.38 | 5.75 | Unisys Corp | 14.69 | 0.00 | 0.4 |
| **ADBE** | 53.13 | 32.50 | Adobe Systems Inc | 42.00 | -0.31 | -0.7 |
| **AMSWA** | 15.63 | 5.88 | American Software Inc | 9.44 | 1.31 | 12.2 |
| **APLX** | 28.00 | 3.13 | Aplix Inc | 6.00 | -0.38 | 5.8 |
| **ARSW** | 53.25 | 17.88 | Ardent Software | 31.88 | 2.63 | -7.7 |
| **ADSK** | 51.75 | 15.25 | Autodesk Inc | 48.56 | 1.44 | -3.6 |
| **BCSS** | 38.00 | 21.00 | BCS Systems Inc. | 34.25 | -1.50 | -4.2 |
| **BMCS** | 69.50 | 39.63 | BMC Software Inc | 64.88 | 1.11 | 3.2 |
| **BOOL** | 35.25 | 19.75 | Bodle and Babbage | 29.63 | -0.38 | -2.9 |
| **BORL** | 12.19 | 5.38 | Borland Int'l Inc | 10.13 | 0.19 | 1.9 |
| **BOBY** | 16.75 | 9.63 | Business Objects | 11.50 | -0.38 | -4.9 |
| **CAYN** | 6.25 | 2.88 | Cayenne Software Inc | 2.44 | -0.19 | 7.1 |
| **CNTR** | 5.88 | 1.13 | Centura Software | 1.88 | 0.19 | 12.5 |
| **CHKPF** | 50.50 | 15.88 | Checkpoint Software Tech | 46.25 | -2.00 | -4.1 |
| **COGNF** | 39.50 | 17.88 | Cognos Inc (L) | 17.88 | 2.38 | 19.7 |
| **CA** | 81.94 | 31.25 | Computer Associates | 77.88 | 2.00 | 2.7 |
| **CVN** | 19.00 | 1.94 | Computervision Corp | 3.69 | 0.06 | 1.7 |
| **CPWR** | 58.13 | 12.13 | Compuware Corp (H) | 34.88 | -2.13 | -5.7 |
| **CSRE** | 18.88 | 6.25 | Consumers Inc (L) | 8.25 | -0.31 | -4.8 |
| **COSFF** | 8.38 | 2.47 | Cosoi Corp (L) | 2.47 | -0.25 | -9.2 |
| **DWTI** | 6.63 | 2.25 | Datawatch Technologies Inc. | 3.19 | 0.00 | 2.0 |
| **FILE** | 36.50 | 9.00 | Filenet Corp | 37.47 | 0.59 | 2.2 |
| **FRTE** | 20.00 | 1.25 | Foote Software | 19.00 | -0.63 | 5.9 |
| **FTPS** | 8.63 | 2.25 | FTP Software Inc (L) | 3.38 | -0.22 | -6.5 |
| **HUMCF** | 54.25 | 33.00 | Hummingbird Comm Ltd | 33.75 | 0.44 | 1.3 |
| **HYSW** | 49.38 | 11.88 | Hyperion Software Corp (H) | 43.19 | 0.81 | 1.8 |
| **IDBC** | 20.88 | 11.25 | Information Resources | 14.94 | -0.44 | -2.8 |
| **IFMXE** | 1.44 | 0.88 | Informix Corp | 9.87 | 0.00 | 0.0 |
| **INGR** | 16.19 | 6.25 | Intergraph Corp | 10.56 | -0.06 | -0.5 |
| **LEAF** | 0.88 | 0.81 | Interleaf Inc | 1.06 | 0.00 | 1.8 |
| **XLLI** | 18.38 | 9.13 | Intersolv Inc | 15.69 | 0.25 | 1.6 |
| **INTU** | 37.00 | 20.88 | Intuit Inc | 29.75 | -0.31 | 1.0 |
| **TLC** | 20.50 | 5.50 | Learning Co. (The) | 17.81 | 0.00 | 0.0 |
| **LGWX** | 12.88 | 4.13 | Logic Works | 8.88 | -0.31 | 3.6 |
| **MAPS** | 14.25 | 7.88 | Mapinfo Corp (H) | 13.25 | -0.00 | -2.8 |
| **MATH** | 5.13 | 2.19 | MathSoft | 3.25 | 0.06 | 2.0 |
| **MCAF** | 78.50 | 36.50 | McAfee Associates | 45.88 | 1.00 | 2.2 |
| **MENT** | 13.11 | 0.50 | Mentor Graphics | 9.91 | -0.19 | 1.9 |
| **MFGY** | 29.11 | 14.00 | Micro Focus | 23.50 | -0.75 | -2.2 |
| **MCXI** | 10.63 | 6.00 | Microcadam Inc | 9.38 | -0.25 | -2.6 |
| **MSFT** | 150.75 | 74.13 | Microsoft Corp | 130.88 | 1.75 | 2.7 |
| **OBJS** | 3.13 | 0.63 | ObjectShare Inc (L) | 0.88 | -0.13 | 16.7 |
| **ORCL** | 42.13 | 22.50 | Oracle Corp | 33.19 | 1.81 | 5.2 |
| **PMTC** | 64.25 | 37.88 | Parametric Technology | 50.31 | 0.44 | 0.9 |
| **PSFT** | 68.63 | 30.81 | Peoplesoft | 58.38 | -0.25 | -0.4 |
| **PTEC** | 19.75 | 11.00 | Phoenix Technologies | 16.75 | -0.25 | 1.7 |
| **PSQL** | 13.75 | 8.00 | Platinum Software | 7.88 | 0.00 | -0.7 |
| **PLAT** | 18.88 | 10.25 | Platinum Technology | 25.63 | -0.00 | -2.8 |
| **PRGS** | 35.25 | 12.63 | Progress Software Corp | 30.00 | 1.13 | 5.3 |
| **RNBO** | 20.13 | 13.75 | Rainbow Technologies Inc | 24.88 | -0.50 | -2.0 |
| **REDB** | 26.50 | 0.00 | RedBrick Systems Inc | 7.25 | 0.00 | 0.0 |
| **ROSS** | 9.75 | 1.75 | Ross Systems Inc | 1.63 | -0.00 | 1.7 |
| **SAFE** | 61.00 | 18.00 | Safeguard Corp | 52.25 | 0.00 | -0.9 |
| **SCOC** | 8.63 | 1.13 | SCO Inc | 1.81 | -0.25 | -9.1 |
| **SDTI** | 44.50 | 21.00 | Security Dynamics Tech | 34.88 | -4.63 | 11.7 |
| **SOTA** | 11.63 | 0.88 | State of the Art | 14.00 | -0.25 | 1.7 |
| **SSW** | 37.38 | 21.25 | Sterling Software Inc (H) | 36.50 | 0.00 | 1.4 |
| **SDRC** | 30.00 | 16.63 | Structr Dynamics Research | 17.00 | -0.75 | -9.1 |
| **SYBS** | 23.63 | 11.13 | Sybase Inc | 14.00 | -0.63 | -4.0 |
| **SYMC** | 25.75 | 13.38 | Symantec Corp | 25.44 | 1.38 | 6.5 |
| **SNPS** | 47.00 | 21.75 | SynOpsys | 41.38 | 1.69 | 3.9 |
| **SSAH** | 17.63 | 3.88 | System Software Assoc. | 13.47 | 1.47 | 0.8 |
| **SYSS** | 22.00 | 6.00 | Systemsoft Corp. | 8.50 | -0.31 | -4.1 |
| **TRUV** | 5.19 | 1.50 | Travelocity Corp. | 5.38 | 0.00 | 0.0 |
| **VHTW** | 39.25 | 9.00 | Visiologic Systems (H) | 26.19 | 1.00 | 3.9 |
| **VMRP** | 11.75 | 5.75 | Vmark Software Inc | 8.88 | 1.13 | 14.5 |
| **WALK** | 12.25 | 10.50 | Walker Interactive Systems | 11.00 | 1.13 | -8.0 |
| **WALL** | 89.13 | 79.75 | Wall Data Inc. | 16.44 | -0.00 | -0.4 |
| **WANG** | 25.00 | 16.00 | Wang Laboratories Inc. | 22.56 | 0.94 | 1.9 |
| **AMZN** | 66.00 | 15.75 | Amazon.com | 51.97 | 2.53 | -4.6 |
| **AOL** | 91.13 | 91.00 | America On-Line | 75.38 | 1.69 | -2.2 |
| **ATHM** | 30.63 | 16.88 | At Home Corp | 19.88 | -0.94 | -5.1 |
| **CSRV** | 14.56 | 0.06 | Concurrent Corp | 12.69 | -0.50 | -3.8 |
| **EDPY** | 22.13 | 8.88 | Edify Corp. | 17.63 | 0.78 | -0.1 |
| **XCIT** | 35.38 | 7.25 | Excite, Inc. | 25.38 | -0.59 | -2.2 |
| **SEER** | 14.88 | 4.38 | Inprise Corp | 13.13 | -0.44 | 5.8 |
| **LCOS** | 42.06 | 12.38 | Lycos Inc | 36.88 | -0.13 | -0.5 |
| **NETC** | 21.88 | 1.88 | Netcom On-Line | 20.06 | 0.94 | 4.9 |
| **NSCP** | 80.38 | 28.38 | Netscape Comm. Corp. | 24.25 | 1.56 | -3.2 |
| **ONMT** | 11.75 | 6.50 | Open Market Inc. | 10.06 | -0.11 | 1.0 |
| **PSIX** | 14.88 | 5.50 | PSINet | 6.69 | -0.69 | -9.3 |
| **QDEK** | 7.15 | 1.75 | Quarterdeck Corp. (L) | 1.91 | 0.19 | 7.8 |
| **RAPT** | 25.00 | 0.88 | Raptor Systems | 10.88 | 0.28 | 3.9 |
| **SCUD** | 14.81 | 4.75 | Security Dynamics Corp | 12.44 | -0.50 | -3.9 |
| **SPYG** | 18.88 | 6.00 | Spyglass Inc | 7.53 | -0.19 | -4.4 |
| **YHOO** | 98.63 | 91.88 | Yahoo! Inc | 30.63 | -2.00 | -8.8 |
| **AMD** | 20.50 | 2.88 | Advanced Micro Devices | 21.69 | -0.69 | -3.1 |
| **ADI** | 36.88 | 20.81 | Analog Devices Inc | 31.38 | -0.19 | -0.6 |
| **CHPS** | 20.75 | 7.88 | Chips and Technologies | 15.41 | -0.34 | -2.2 |
| **CIRUS** | 21.50 | 8.00 | Cirrus Logic | 10.88 | 1.13 | -7.0 |
| **CY** | 10.94 | 10.13 | Cypress Semiconductor Corp. | 10.94 | -0.81 | -6.9 |
| **INTC** | 102.88 | 36.75 | Intel Corp. | 76.81 | -0.38 | -4.2 |
| **LSCC** | 36.50 | 20.75 | Lattice Semiconductor | 30.50 | 0.00 | 0.0 |
| **LSI** | 46.88 | 19.63 | LSI Logic Corp | 23.44 | -0.38 | 1.0 |
| **MCRL** | 46.88 | 12.88 | Micrel Semiconductor Inc. | 34.44 | -0.63 | -13.4 |
| **MU** | 30.38 | 22.38 | Micron Technology | 25.25 | -0.94 | -3.6 |
| **MOT** | 90.50 | 51.50 | Motorola Inc. | 64.63 | -2.19 | -4.9 |
| **NSM** | 42.88 | 20.00 | National Semiconductor | 27.88 | -2.63 | -7.4 |
| **TXN** | 71.50 | 27.63 | Texas Instruments | 48.69 | -3.25 | -4.3 |
| **VLSI** | 28.50 | 14.88 | VLSI Technology | 22.69 | -0.06 | -26.2 |
| **XLNX** | 58.50 | 28.38 | Xilinx | 38.44 | -0.50 | 1.6 |
| **ZLG** | 29.88 | 17.38 | Zilog Inc. | 19.19 | 0.00 | 0.0 |
| **ADPT** | 54.25 | 20.13 | Adaptec Inc. | 48.63 | 0.81 | 1.6 |
| **APCC** | 30.25 | 15.25 | American Power Conversion | 20.75 | 0.00 | 4.1 |
| **CREAF** | 29.88 | 5.88 | Creative Technology Ltd | 26.88 | -1.25 | -8.6 |
| **DACE** | 24.38 | 4.88 | Data Race Inc. | 4.88 | -0.19 | -3.7 |
| **DTM** | 12.50 | 7.38 | Dataram Corp | 8.84 | 0.00 | 0.0 |
| **EMC** | 32.69 | 14.59 | EMC Corp. | 30.88 | -0.81 | -0.5 |
| **EMLX** | 21.25 | 14.13 | Emulex Corp. | 15.75 | 0.00 | 2.4 |
| **ESCC** | 31.88 | 22.88 | Eurotech and Switzerland | 30.50 | -0.75 | -2.4 |
| **EXBT** | 13.50 | 9.88 | Exabyte | 10.06 | -0.19 | 5.2 |
| **ISLF** | 2.63 | 0.94 | Intelligent Info Systems | 1.19 | -0.34 | -5.0 |
| **IOM** | 32.31 | 14.13 | Iomega Corp. (H) | 32.13 | 0.06 | 0.2 |
| **IPLS** | 2.81 | 0.88 | IPL Systems Inc. | 1.56 | 0.00 | 4.3 |
| **KMAG** | 36.75 | 15.31 | Komag Inc. | 20.38 | -1.19 | -5.2 |
| **MTSI** | 36.44 | 17.25 | Micro Linear Systems Inc. | 21.00 | 0.00 | 0.0 |
| **MTIC** | 19.88 | 2.25 | MTI Technology Corp | 13.00 | 1.56 | -9.3 |
| **PNCL** | 7.81 | 0.40 | Pinnacle Micro Inc. (L) | 0.41 | -0.22 | -35.0 |
| **AQM** | 35.38 | 3.88 | QMS Inc. | 5.19 | 0.13 | 4.2 |
| **QNTM** | 43.25 | 12.88 | Quantum Corp | 27.19 | -1.19 | -4.2 |
| **RDUS** | 0.88 | 0.19 | Radius Inc. | 0.38 | -0.06 | 14.3 |
| **SEG** | 56.25 | 22.00 | Seagate Technology (L) | 22.56 | -0.56 | 1.2 |
| **SDS** | 19.63 | 7.00 | Storage Computer Corp. | 7.06 | -0.75 | -8.7 |
| **STK** | 85.88 | 31.25 | Storage Technology (H) | 49.00 | -0.50 | -0.8 |
| **TBX** | 46.88 | 31.56 | Trimble Inc | 41.38 | 1.13 | -2.6 |
| **WDC** | 34.75 | 19.63 | Western Digital Corp | 20.25 | -2.00 | -8.8 |
| **XRX** | 80.50 | 63.38 | Xerox Corp | 75.63 | 0.75 | 1.0 |
| **AMSY** | 37.13 | 15.75 | American Mgmt. Systems | 11.00 | 2.25 | 76.8 |
| **ANLY** | 30.25 | 21.25 | Analytics Int'l (H) | 47.38 | 0.84 | 1.8 |
| **AUD** | 58.25 | 26.56 | Auto Data Processing (H) | 56.44 | 1.00 | -1.7 |
| **BDMI** | 20.75 | 19.75 | BDM International Inc. (H) | 29.25 | 0.00 | 0.0 |
| **CATP** | 87.56 | 81.25 | Cambridge Tech Partners (H) | 68.63 | -2.38 | -5.2 |
| **CTN** | 30.88 | 29.00 | Centigram Corp | 28.09 | 0.19 | 0.8 |
| **CDO** | 34.00 | 18.38 | Comdisco Inc | 23.88 | 0.81 | 2.8 |
| **CPU** | 37.50 | 13.25 | CompUSA Inc. | 36.50 | 0.44 | 1.2 |
| **CMRZ** | 25.88 | 16.75 | Computer Horizons | 22.81 | -0.69 | -0.1 |
| **CSC** | 80.50 | 57.88 | Computer Sciences | 28.19 | -0.75 | -1.0 |
| **TSK** | 49.50 | 19.88 | Computer Task Group | 31.56 | 1.00 | 0.3 |
| **EGGS** | 11.13 | 3.88 | Egghead Discount Software | 9.13 | -1.50 | -13.4 |
| **EDS** | 46.88 | 36.56 | Electronic Data Systems Corp. | 38.00 | -0.25 | -0.5 |
| **ICO** | 30.25 | 19.75 | Imagon Corp. | 25.63 | -2.38 | -7.7 |
| **IBEL** | 8.75 | 2.25 | Intelligent Electronics | 5.06 | -0.22 | -2.4 |
| **REA** | 39.00 | 12.88 | Reynolds Inc. | 32.00 | 1.25 | -3.8 |
| **MICA** | 28.75 | 12.31 | Micronics Inc. | 21.13 | 3.69 | -14.9 |
| **PAYX** | 45.88 | 25.81 | Paychex (H) | 30.38 | 1.38 | -0.5 |
| **PMS** | 69.38 | 28.75 | Policy Management Sys. | 53.19 | -0.19 | -0.3 |
| **REY** | 30.63 | 13.75 | Reynolds and Reynolds | 29.13 | 0.25 | 1.2 |
| **SCBI** | 22.25 | 10.75 | SCB Computer Tech Inc. | 16.75 | 1.32 | -4.7 |
| **SEIC** | 64.50 | 10.75 | SEI Corp | 41.75 | -0.50 | -1.2 |
| **SMS** | 30.81 | 20.75 | Shared Medical Systems | 64.00 | 0.31 | 0.5 |
| **SSPE** | 35.50 | 10.00 | Software Spectrum Inc. | 33.75 | -0.88 | -6.9 |
| **SDS** | 27.13 | 18.50 | Sungard Data Systems | 25.94 | 0.13 | 0.5 |
| **VST** | 30.13 | 0.00 | Vanstar Corp | 23.25 | 0.00 | 9.9 |

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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# IT rescue justifies merger

CONTINUED FROM COVER 1

States tens of millions of dollars to upgrade its moribund systems to survive on its own.

For example, it would have cost the bank $60 million just to make its computer systems year 2000-compliant if it had remained independent, said CoreStates Chairman Terrence A. Larsen.

CoreStates' systems are so antiquated, "it helps make the 45% cost reductions that much more credible" and "helps to justify the purchase price," said Moshe Orenbuch, an analyst at Sanford C. Bernstein & Co. in New York. That includes CoreStates' creaky mainframe-based retail banking systems, which the bank was planning to upgrade to stem the loss of deposits and customers.

An IS manager at CoreStates who requested anonymity said the bank currently uses "dozens" of older retail banking systems which run on its IBM IMS/CICS mainframe. Prior to First Union's takeover plans, CoreStates had considered buying a branch banking system to automate its teller operations.

By moving the bulk of CoreStates' accounts to its own applications, First Union believes it can slash the remainder of CoreStates' year 2000 conversion costs to less than $10 million, said Austin A. Adams, executive vice president at First Union, the nation's sixth-largest bank.

Adams said First Union wants to quickly migrate CoreStates' systems to hasten revenue-generating opportunities and negate any long-term impact on its earnings. First Union expects to slash 45% of CoreStates' 1997 expense base by the end of 1999 and return it to profitability in the next 18 months.

First Union's year 2000 team already has converted applications for two of its four divisions and expects to have all interface testing done by the end of next year. "We happen to be one of the best-positioned banks in dealing with year 2000," Adams said.

Analysts have little reason to doubt him. First Union and San Francisco-based BankAmerica Corp. "have gone into more detail about their year 2000 plans than any bank," said Lawrence R. Vitale, an analyst at Bear, Stearns & Co. in New York. Banks "that don't know where they are [in their planning] can't talk about it," Vitale said.

### YEAR 2000 PRESSURE

That issue could derail some other would-be banking marriages, preventing them from ever reaching the altar. Last month, the Federal Reserve Board threatened to block any mergers involving banks with significant year 2000-related problems.

Adam said he expects to convert CoreStates' applications to First Union by the end of next year, leaving the bank a full year for testing.

They praised First Union's track record for efficiently acquiring and consolidating banks, but some analysts questioned whether First Union has the resources to gobble up CoreStates and still digest two other major acquisitions: Signet Banking Corp. and investment bank Wheat First Butcher Singer, both in Richmond, Va.

Adams said First Union is up to the task. "We converted a bank [acquisition] once every two weeks in 1994," said Adams, who was at CoreStates' headquarters last week working on systems alignment. □

## New CIO coming aboard

First Union Corp. is about to get a little more help managing its far-flung acquisitions.

Tom Fogarty, former CIO at Marsh & McLennan, Inc., today will join First Union as its new chief technology officer. The 48-year-old Long Island native won't have much time to settle into his new digs: After flying into Charlotte Sunday night, Fogarty will visit First Union's headquarters this morning before flying to Philadelphia this afternoon to meet with Covestreet! executives.

Fogarty said he is excited about joining First Union. "They look like they're acquiring the East Coast," said Fogarty of First Union's growth-by-acquisition strategy. Fogarty will replace Skip Kleyhuke, First Union's senior vice president of automation, who is retiring.

It should be a nice switch for Fogarty, who left The Chase Manhattan Bank Corp. as senior vice president of operations and systems to join New York-based Marsh & McLennan in August 1995. Fogarty recently visited the Charlotte area and purchased an 8,500-square-foot house on a golf course. Despite all that space and the new setting, he probably won't be lonely for very long. "I've already met two of my neighbors, and they're both from Long Island," Fogarty said. — Thomas Hoffman

# Recruiters launch dial-a-job program

CONTINUED FROM COVER 1

So was Gary Ussia, a newly hired SCT technical writer who couldn't pass up SCT's invitation to "Stop reading and start dialing" for one of hundreds of open positions for software developers, project managers, technical writers and business analysts.

### HEAVY RESPONSE

The invitation, which ran in a recent Sunday edition of *The Philadelphia Inquirer*, was the brainchild of SCT recruiting manager Rose McGinnis. In four short hours on the afternoon the ad was published, more than 300 technical professionals called in to apply.

So far, five have been hired after subsequent in-person interviews.

SCT also ran ads on Howard Stern's radio program and on an all-news radio station in Philadelphia.

"A lot of people might consider a new job, but they don't want to go through the hassle of getting together a resume and a cover letter and the envelopes," McGinnis said. "This way, our recruiters just built resumes as they talked to candidates on the phone. All candidates had to do was call in. They didn't have to dress up or have a resume or stand in line."

PHOTOGRAPHY BY DAVID

Information systems recruiting guru Chris Velissaris, president of Chicago-based Vie, Inc., which trains IS recruiters, said he couldn't think of a single downside to SCT's phone-in strategy. He said he wouldn't be at all surprised to see other companies quickly pick up on the idea because it's an excellent way to reel in so-called "passive job seekers."

"Everyone knows that most of the best candidates are people who aren't actively looking," Velissaris said. If all these people have to do is pick up a telephone, it is likely that more would check out a job opportunity, he said.

Here is how it worked at SCT. After an initial screening by a technical recruiter, candidates who passed the screening got to talk directly to the SCT hiring manager for whom they would work if they were offered a job.

### DIRECT CONTACT

At job fairs, by contrast, candidates rarely get to talk to managers. Instead, they often must leave their resumes with secretaries, clerks or other administrators who staff a company's booth.

At SCT, hiring managers were set up in a comfortable lounge, complete with food and a television. Between phone interviews, they watched the Philadelphia Eagles beat the Arizona Cardinals 13-10 in overtime.

The phone-in took place over the weekend, which made all the difference for Gaughan.

She was a full-time programmer at another company when she applied to SCT.

"It was difficult for me to try and look for anything during the day, [because] at my previous job, there was no privacy," Gaughan said. "So it was perfect to call on a Sunday."

Two days later, Gaughan electronically mailed her resume to SCT managers, who interviewed her in person on Friday. Two days after that, she had an offer, which she accepted a mere seven days after making the first phone call.

It all makes Daryl Fitzgerald, a senior technical recruiter at The Vanguard Group in nearby Valley Forge, Pa., just a little envious.

"I think it was a great idea. I wish I had thought of it," he said of SCT's Sunday afternoon phone-in session. □

& Williams Cos. tries in-house job-swapping to fill IS posts. Page 37

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COMMENTARY

# The big fixes that aren't

*Bill Laberis*

**You inhabit a world of unmet needs, which is sadly ironic when you consider the waves of new technologies and management methodologies that crash upon your shores, only to recede — leaving a chaotic place still chaotic.**

It is almost 1998, and the vast majority of people in your company and others still have to jump on a plane to attend meetings that were supposed to be supplanted in part by high-quality, affordable videoconferencing.

It's four years after Compaq ran television advertisements that depicted three harried businesspeople stuck in New York traffic, worming their way out of a jam with the wireless transmission of an important fax. Yet two weeks ago, in the very big city of Las Vegas, I watched scores of frustrated, would-be cellular phone users pushed to the edge when their phones couldn't maintain wireless connections — if they could connect at all. Wireless fax, my foot!

It was nearly a decade ago that the first whispers about business process re-engineering came from consultancies from Boston to San Francisco, with all its promise of remaking the IT organization into a powerful, business-centric pillar of the corporate empire.

Just junk the old and ring in the new, extolled the high priests of re-engineering. Add a little more "process" to the mix, then stand back and watch it all bloom.

The good folks at Levi Strauss, considered one of the most IS-savvy companies in the world just a few years ago, drank the re-engineering Kool-Aid in large gulps and focused big time on process. So much so that the company took its eye off selling pants and last month announced the layoff of one-third of its worldwide staff. That means 6,400 people, some of them — perhaps many — victims of re-engineering run amok.

Somehow, the big fixes to legendary problems lie beyond reach, which doesn't stop IS from reaching.

Recently, *Computerworld* documented the trials of several SAP users who remained frustrated (not to mention millions of dollars poorer) after two to three years of trying to create a "fully integrated, seamless information system."

One reason for the many troubled SAP implementations may not be SAP or its products per se or even the legions of pricey SAP consultants. It could be that after hearing for more than a decade that proprietary is bad and open systems best-of-breed is good, many in the IS community simply refuse to accept the relative rigidity and inflexibility SAP dictates. Maybe this explains why seemingly intelligent, prudently managed companies have fallen prey to the exhortations of re-engineering, the allure of "fully open distributed systems" or the promise of technologies that are too good to be true.

The truth is, systems that pass for open systems today are far less manageable than the admittedly closed, proprietary systems of yesterday. (Ask any CIO who's tried to combine the "open systems" of a pair of merged companies.) They have far more points of failure and are very expensive.

They say you can see the future of technology at Comdex. I saw endless queues, some failed product demos and next-generation technologies that have leapfrogged the generation that hasn't even been installed yet.

Yep, I saw the future all right! □

*Laberis was editor in chief at Computerworld from 1986 to 1996. He is now president of Bill Laberis Associates, a consulting and publishing firm in Holliston, Mass. His Internet address is bill@laberis.com.*

# A proposal for reining in Microsoft

*David Moschella*

**Last week, I argued that U.S. government antitrust activity has played a critical role in the computer industry's development. If you read my column, you know I believe that in the cases of IBM and AT&T, government actions directly led to increased industry competition.**

Given that impressive track record, the U.S. Department of Justice's current interest in restraining Microsoft deserves to be taken seriously.

But the tougher question is, if the government does take decisive action, what exactly should it do?

Recognizing the important contributions of Microsoft and the many uncertainties in the business, I offer the following guidelines for enabling a more competitive global software industry:

1. **Limit tie-in sales.** Any efforts to tie sales or distribution of new or existing Microsoft products to the acquisition or use of its monopoly operating systems and applications should be forbidden. On the other hand, tie-ins between non-monopoly products, such as Expedia and The Microsoft Network, should be permitted.

2. **End predatory pricing.** Microsoft shouldn't be allowed to selectively implement freeware or similar policies in cases where the primary purpose isn't to help launch a new market, but rather to hurt specific, identifiable competitors.

3. **Allow only real bundling.** Microsoft should be free to enhance its operating systems with new features. But for new functions to be considered part of the operating system, they must be predominantly shipped that way. If a substantial share of a new function's shipments is through separate, discrete installations, the new function should be deemed a separate product, subject to the terms of items 1 and 2.

4. **Limit the power of cash.** Microsoft's proposed software acquisitions and investment stakes should be approved only when they don't involve the market leader in a particular software segment.

Any investments in nonleaders generally should be assumed to be procompetitive. Outside the packaged software realm, Microsoft should be treated just like any other company.

5. **Commit to operating on Internet time.** To make this level of restraint work, would-be Microsoft overseers must be able to resolve the inevitable gray areas within a maximum of 90 days.

6. **Support open standards.** Although this final issue has nothing to do with antitrust law, the U.S. government remains the world's largest buyer of IT products and services.

To the extent that the feds require compatibility with open standards such as CORBA and Java, they will offer support for a more competitive software marketplace.

That's my list. Missing from the recommendations is any thought of splitting Microsoft's systems and application businesses.

Also missing from the list is any effort to declare Microsoft's operating system a monopoly utility that could therefore be subject to price regulation.

The IT industry will change dramatically over the next five years. All that's really necessary is to restrain Microsoft, not completely shackle it. If competitors do their job, my list should be sufficient. □

*Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is david_moschella@cw.com.*

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The Back Page

# alt.cw

Dispatches & pages from the fringes of the electronic frontier

## DON'T TRY THIS AT HOME

Xenocom Inc. in Fullerton, Calif., offers the Redgrilder series of ruggedized laptops that can operate in heavy rainstorms, salty air, dust storms and extreme temperatures ranging from -2 to 140 degrees Fahrenheit. The laptops, which cost from $4,000 to $5,000, have waterproof keyboards and ports, and can survive a three-foot drop.

## Family values

Despite its reputation for promoting smut and antisocial behavior, the Internet actually strengthens family values, say researchers at ActivMedia in Peterborough, N.H. Internet users report that the network helps them stay in touch with distant friends and relatives and reduces visits to bars and clubs.

**Digital archivas**

### 20 YEARS AGO
(December 1977)

- **Headline: Computerized [grocery] checkout** big hit with customers
- **Scandinavian Airlines System orders a Sperry Univac 1100/83** mainframe for $10 million.
- **Headline:** High court kills **Bell** bid for antitrust immunity

### 10 YEARS AGO
(December 1987)

- **IBM releases OS/2 Standard Edition Version 1.0.** Some pundits say OS/2 will be the top PC operating system by 1990.
- **Microsoft** ships 1 millionth copy of **Windows.**
- **IBM says its Rolm subsidiary,** purchased for $1.5 billion in 1984, will be absorbed as an IBM division.
- Terminal makers **Memorex** and **Telex** agree to merge.

## Clear off your desktop

**Nova Solutions in Effingham, Ill., has developed a retrofit kit that holds a computer monitor below the desk surface so it can be viewed through a glass panel at a comfortable angle. The first step: Cut a hole in the desktop. The retrofit hardware costs $250 to $350.**

## InsideLines

*If you get a perverse thrill dealing with hardware and software glitches, you'll enjoy the new "Computer Bugs" exhibit at the Smithsonian Institution's Museum of American History. Visit the museum in Washington or at www.si.edu to reminisce about bugs ranging from actual insects in early computers to documented gotchas in Windows 95. Thus inspired, forward your own bug reports, rumors and news tips to Computerworld News Editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.*

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PENTIUM II

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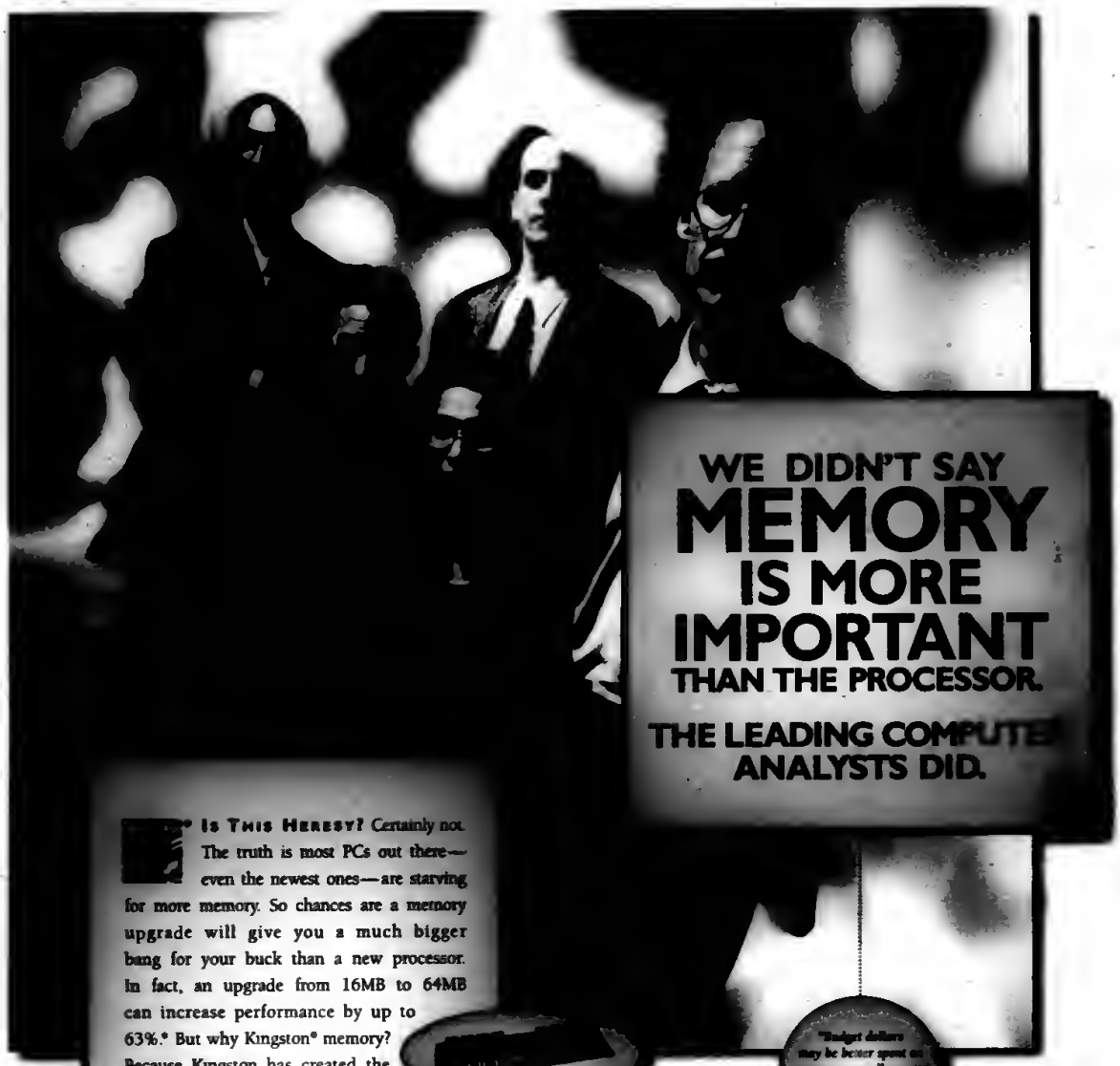


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